

Flight, March 2, 1916.

FLIGHT

First Aero Weekly in the World.

Founder and Editor: STANLEY SPOONER.

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TO OUR READERS.

The Supply of "FLIGHT." Important Notice.

Order "FLIGHT" to be either delivered or reserved for you regularly.

As the demand for "FLIGHT" is so great each week, it is of the utmost importance that readers should place their orders *firmly* for copies of "FLIGHT" at the bookstalls, their newsagents, or direct from the publishers, at 44, St. Martin's Lane, W.C., if they wish to secure a copy every week and avoid disappointment. The stringent Government restrictions in regard to the supply of printing paper necessitates this precaution in order that only actual numbers required are printed, and all wastage by unsold copies may thereby be reduced to a minimum, if not eliminated.

THE PUBLISHERS.

EDITORIAL COMMENT.

AS we last week foreshadowed would be the case, Lord Derby has been appointed Chairman of the new Joint Committee for the co-ordination of the construction side of the Naval and Military Air Services, and it is a good sign that this Committee has already held meetings and has set to work without delay in what we hope will be an all-round waking-up policy for matters of the Air. Although the Government have stopped short of giving

an Air Ministry, the creation of this special Committee is a step forward in the right direction. It will be our duty and endeavour to urge the formation at the very earliest moment possible of the more responsible office of Air Minister. Whilst recognising the difficulties which must necessarily arise therefrom in the revolution of orthodox grooves under the existing conditions of the world, there is no reason why all plans and arrangements should not be thrashed out in anticipation of the time when the demands of the Air Element will claim their legitimate right to a more responsible representation in the affairs of the Empire. Moreover, as we have so often ventured to hope, there is the possibility of this third Service bringing the two older Services more into sympathetic working with each other than has prevailed in the past forty years of comparative world's peace. In fact it is already indicated that this much to be desired result is to be one of the objects to be sought for in conjunction with the work of the Committee. It would, however, appear to be a great handicap to the efficient working of the Committee that Lord Derby seems to be still attached to the recruiting campaign, which he has so ably conducted during the past eight months or so. Every ounce of Lord Derby's organising powers will be necessary if immediate effect is to be given to the desires of the country and Parliament, so unmistakably expressed, for a strong air fleet. The sooner, therefore, it is possible for the whole of his time—which, as usual, Lord Derby is placing at the service of his country without one shilling of

remuneration—to be devoted to the bringing into being of the really big air fleet necessary for us to hold our own against our enemies, the sooner will confidence be restored, and the end be in sight. It is to be hoped that there is no idea of the Government thinking that by the appointment they are once again safe from criticism, and that things can go on just as before. The temper of the people will have been greatly misjudged should this view be taken, and the Cabinet will quickly realise, when the discussion upon the Air Services is resumed, that it will take something more than the flinging of a bare bone of explanation, upon the lines of the last puerile effort of the Under-Secretary for War, to appease the demand for something more substantial than the very lame attempt at justification by Mr. Tennant. Although it must be admitted Lord Derby has little or no technical knowledge of aviation, he is a born diplomatist, and a man with an open mind, and clear of prejudices one way or the other. In a measure the absence of technical qualification may prove a blessing in disguise. Combined with his strenuous working powers, and assisted by the expert advisers who will be associated with him, as to the requirements of the Army and Navy, he should be able to cast out all prejudiced and narrow views, and organise upon a gigantic scale what, after all, is nothing more than an enormous business problem. It is then up to the Services to use the output to the best possible advantage.

One danger so strong a man as Lord Derby should be able to steer clear of: the attaching to the Committee of so-called "experts" who consider little but their personal interests and advancement, and whose knowledge, except of the most superficial character, is conspicuous by its absence.

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The Dover Air Raid.

With much indignation Mr. Tennant last week said things about the statements made by Capt. Bennett-Goldney in regard to what took place when the Germans raided Dover. The Under-Secretary for War claimed that "some of them were wholly without foundation"—and he then continued by contradicting some of the allegations and giving a plausible *résumé* of what he said did happen, a report of which appears elsewhere in this issue. But Capt. Bennett-Goldney will have none of it, and on Thursday last week he foreshadowed to his constituents at Canterbury how he proposed to justify his story of the unpreparedness of the aerial defence of our coasts. In his own words his case is:

"What I have to say in reply shall also be heard in the House of Commons. Meanwhile I retract nothing; I vouch for the truthfulness of everything I stated, and were it not that I hold the opinion that a discussion about

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Lord Derby's New Post.

ANSWERING a question by Sir J. Bethell in the House of Commons on the 24th ult., the Prime Minister said:—

"The Earl of Derby has accepted the chairmanship of the Joint Naval and Military Committee appointed to supervise the Air Service, and, with his accustomed public spirit, my noble friend has volunteered to act without any remuneration."

Sir Percy Scott's Position.

DR. MACNAMARA in the House of Commons on February 24th

details is not desirable at the moment, I could add a great deal to what I did say. Mr. Tennant fears that any disclosures of inefficiency of the kind are likely to depress the public. The public is far more likely to be depressed by the uncomfortable feeling which has been long gathering strength that they have been misled and lulled into a feeling of false security by the soothing assurance of past Ministers that everything is satisfactory with our Air Services."

Recriminations are not very helpful, provided the one in fault sets his house in order without delay, and we can only hope that the disclosures already made as to the organisation—or rather the want of it—in the R.N.A.S. will from henceforward make such an exhibition of inefficiency a back number. Indeed, from certain "liveliness" which we have ourselves since witnessed in the patrolling and work on the coast, a distinct improvement has set in, which, it is to be trusted, is the forerunner of more vigorous executive control. It is gratifying to learn from the Navy League that at a special meeting of the Emergency Committee last week, the question of aircraft policy was carefully considered in consultation with competent experts. It was unanimously decided that an urgent appeal be made to the Government to concentrate national effort for aircraft construction with a view to the maintenance of a vigorous offensive policy rather than from the standpoint of defence.

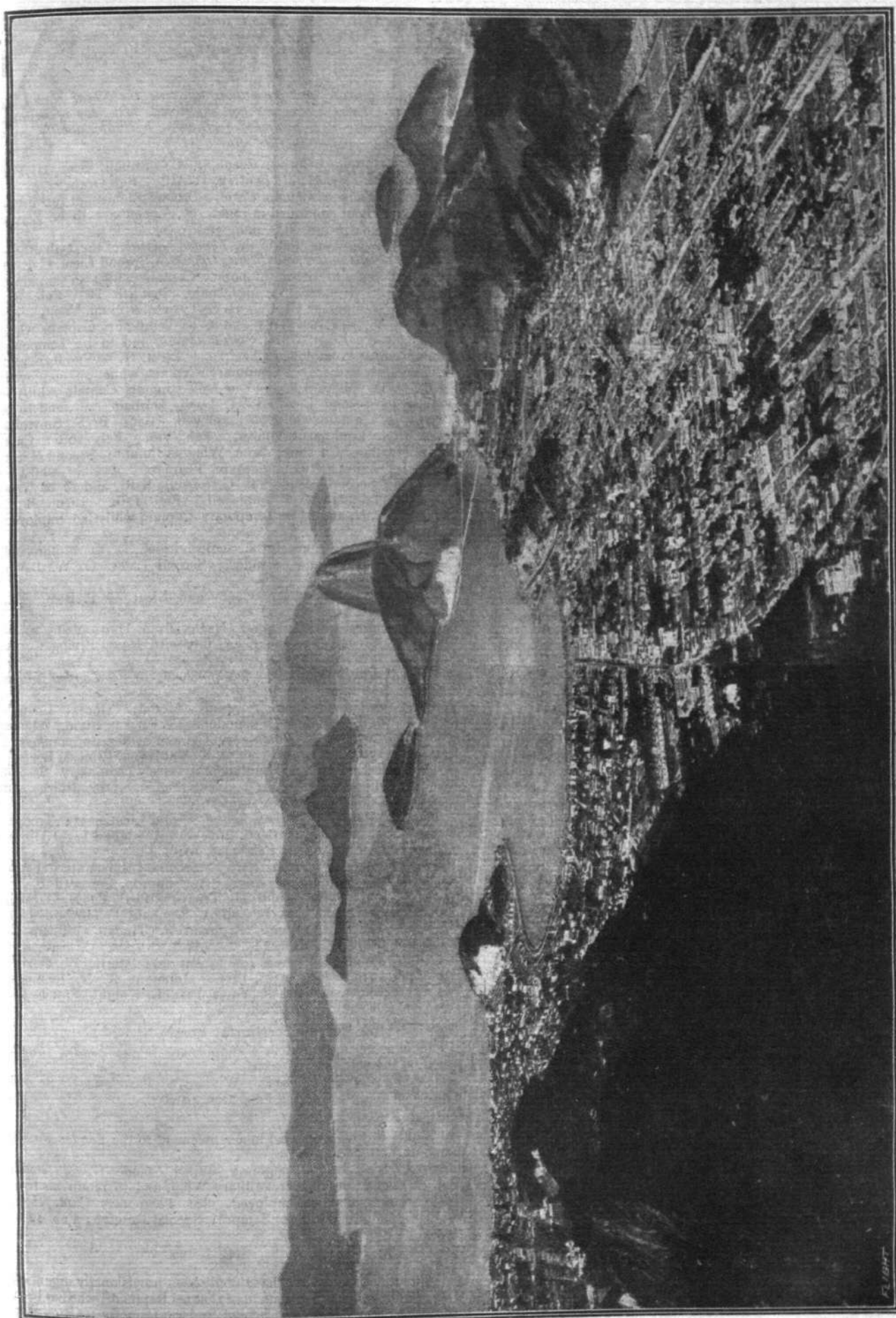
It was urged there should be no diversion of production energy in the provision of aircraft for the full needs of the Navy and Army in response to clamour for defence against raids. The soundest scheme for effectively dealing with enemy raids was, in the opinion of the League, the improvement and expansion by every means possible of the striking efficiency of the aerial wings of both the fighting services.

With all of which we are thoroughly in accord. The inclination of a very large number of the home-birds is to have no thought outside the results of the Zeppelin air-raids over England. Let one and all blot this exceedingly narrow view from their minds and look to the elaboration of the Air Service as a whole, as a means to shortening the war. That this elaboration should also incidentally bring with it an amelioration of the possibilities of future air-raids is to be devoutly hoped for. But that the *primary* object of the co-ordination of the Air Services construction should be to render the Zep. raids such a highly hazardous adventure as to eliminate them altogether, is a view which is narrow, short-sighted and selfish. None of us seek sudden death. But the risk we run in this country is but as a zephyr breeze to the wild hurricane of danger being run every hour of the day by those who are fighting our battles on the other side.

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informed Major Newman that Sir Percy Scott's responsibility to the Admiralty ceased on the transfer of the anti-aircraft defence of London to the War Office.

He had now accepted the appointment of adviser to the Commander-in-Chief of the Home Forces in connection with gunnery matters relating to such anti-aircraft defence, and he was also, under an agreement made in November, 1914, available for consultation in regard to naval gunnery when the Board of Admiralty desired his advice.



A panoramic view of Rio de Janeiro and Bay, the course chosen for the first competition for the Pan-American Aviation Trophy.

The British Air Service

"PER ARDUA AD ASTRA"

UNDER this heading are published each week the official announcements of appointments and promotions affecting the Royal Naval Air Service and the Royal Flying Corps (Military Wing) and Central Flying School. These notices are not duplicated. By way of instance, when an appointment to the Royal Naval Air Service is announced by the Admiralty it is published forthwith, but subsequently, when it appears in the LONDON GAZETTE, it is not repeated in this column.

Royal Naval Air Service.

THE following appeared among the Admiralty announcements of the 23rd ult. :—

J. B. R. Swan, entered as Temporary Lieutenant (R.N.V.R.), with seniority of Feb. 22nd, and appointed to "President," for R.N.A.S.

The following appeared among the Admiralty announcements of the 26th ult. :—

Late Second Lieut. (A.S.C.) D. R. Baylis, entered as Probationary Flight Sub-Lieutenant (temporary), with seniority of Feb. 17th, and appointed to "President," for R.N.A.S.

The following appeared among the Admiralty announcements of the 28th ult. :—

G. B. Hardy entered as Temporary Warrant Officer, Second Grade, and appointed to the "President," for R.N.A.S. To date March 6th.

Royal Flying Corps (Military Wing).

THE following appeared in the *London Gazette* of the 22nd ult. :—

Squadron-Commander.—Capt. V. A. Barrington-Kennett, Special Reserve, from a Flight-Commander, and to be Temporary Major whilst so employed; Feb. 1st, 1916.

Equipment Officer.—Second Lieut. George P. Grenfell, Special Reserve, from an Assistant Equipment Officer, and to be Temporary Captain whilst so employed; Jan. 30th, 1916.

Flying Officers.—Feb. 8th, 1916: Temporary Capt. D. M. Rawcliffe, Manchester Regt. (T.F.). Second Lieut. O. A. Westendarp, London Regt. (T.F.). Second Lieut. Rudolph D. Vavasour, R.F.A., Special Reserve. Second Lieut. James W. Gordon, Special Reserve. Second Lieut. William B. Young, Special Reserve. Temporary Second Lieut. A. M. Lowery, R.A., and to be transferred to the General List; Feb. 9th, 1916.

Supplementary to Regular Corps.—Second Lieuts. (on probation) confirmed in their rank: James W. Gordon and William B. Young.

The following appeared in a supplement to the *London Gazette* issued on the 23rd ult. :—

Memorandum.—Capt. Stanley E. Lewis, South African Defence Forces, to be Temporary Second Lieutenant for duty with the Royal Flying Corps; Oct. 1st, 1915. (Substituted for the notification which appeared in the *Gazette* of Oct. 13th, 1915.)

Supplementary to Regular Corps.—Second Lieutenant (on probation) William S. R. Bloomfield is confirmed in his rank. To be Second Lieutenants (on probation): Fortescue Hitchins; Jan. 26th, 1916. Sydney S. Dixon; Jan. 31st, 1916. Oscar C. Morison; Feb. 18th, 1916. Feb. 20th, 1916: William B. Sherwood, Ronald Buck.

The appointment of Reginald M. Motabboy to a Second Lieutenancy (on probation), which appeared in the *London Gazette* of Jan. 5th, 1916, is cancelled as from Feb. 19th, 1916.

The following appeared in a supplement to the *London Gazette* issued on the 24th ult. :—

Flying Officers.—Feb. 10th: Capt. A. S. M. Summers, 19th Hrs.; Lieut. H. S. Mackay, Hants R.G.A. (T.F.); Second Lieut. H. G. Corby, R. Muns. F., and seconded; Second Lieutenant W. S. R. Bloomfield, S.R.

Flying Officers (Observers).—Oct. 21st, 1915: Lieut. R. C. Gill, R.A., and seconded; Second Lieut. (Temporary Lieut.) C. J. Orde, A.S.C., S.R.; Temporary Second Lieut. H. H. James, Som. L.I., and transferred to General List; Second Lieut. H. Hewett, R. Berks, and seconded; Temporary Lieut. H. V. Stammers, Motor Mach. Gun Serv., and transferred to General List. Nov. 8th, Feb. 1st, 1916: Second Lieut. E. A. Floyer, I.A.R. of O.; Second Lieut. V. A. Stookes, 2nd Dgns., S.R.; Temporary Second Lieut. G. Mortimer, Conn. Rang., and transferred to General List; Temporary Second Lieut. I. G. Davies, R. Welsh F., and transferred to General List.

Memorandum.—To be Temporary Second Lieutenants for duty

with Royal Flying Corps: Corpl. J. A. Turnbull, Scot. H. Yeo. Jan. 22nd. Sergt. H. M. Bentley, H.A.C. Feb. 10th.

Supplementary to Regular Corps.—Second Lieutenant (on probation) H. P. Boot confirmed in rank. R. A. Delhay to be Second Lieutenant (on probation). Jan. 31st.

The following appeared in the *London Gazette* of the 25th ult. :—

Flight-Commanders from Flying Officers.—Second Lieut. C. E. H. James, Welsh, and to be Temporary Captain whilst so employed. Jan. 25th. Capt. C. Y. McDonald, Seaforth H. Feb. 8th. Feb. 1st: Temporary Capt. J. H. S. Tyssen, N. Som. Yeo.; Lieut. R. J. Tipton, R.F.A. (T.F.), and to be Temporary Captain whilst so employed; Lieut. L. H. Sweet, Hants, and to be Temporary Captain whilst so employed; Temporary Lieut. H. A. Van Ryneveld, General List, and to be Temporary Captain whilst so employed; Lieut. O. D. Filley, S.R., and to be Temporary Captain whilst so employed; Second Lieut. S. H. Long, Durham L.I., and to be Temporary Captain whilst so employed. Capt. B. E. Smythies, R.E., from Equipment Officer. Feb. 7th. Feb. 10th: Capt. H. S. Walker, Cheshire, from Wing Adjutant; Second Lieut. P. E. L. Gethin, S.R., and to be Temporary Captain whilst so employed; Second Lieut. J. P. C. Sewell, S.R., and to be Temporary Captain whilst so employed. Feb. 12th. Lieut. B. C. McEwen, S.R., and to be Temporary Captain whilst so employed. Feb. 13th.

Flying Officers.—Feb. 12th: Second Lieut. D. O. Mulholland, Con. Rang., S.R., and seconded; Second Lieut. G. W. Bavin, Lincs, and seconded.

Assistant Equipment Officer.—Second Lieut. H. P. Boot, S.R. Jan. 20th.

Memorandum.—Sergt. A. E. Neale, from Herts Yeo., to be Temporary Second Lieutenant, for duty with Royal Flying Corps. Feb. 3rd.

The following appeared in a supplement to the *London Gazette* issued on Feb. 28th :—

Wing-Adjutants.—Lieut. A. McR. Moffat, Princess Louise's (Argyll and Sutherland Highlanders) (T.F.), a Flying Officer (Observer), and to be Temporary Captain whilst so employed; Feb. 10th, 1916. Major Norman D. K. MacEwen, Princess Louise's (Argyll and Sutherland Highlanders), vice Temporary Second Lieut. (Temporary Capt.) J. B. Solomon, Oxfordshire and Buckinghamshire L.I.; Feb. 16th, 1916.

Memorandum.—To be Temporary Second Lieutenant: Trooper Alexander A. Norman Pentland, from 10th Australian Light Horse, for duty with the R.F.C.; Feb. 21st, 1916.

Supplementary to Regular Corps.—Second Lieutenants (on probation) confirmed in their rank: J. C. Simpson, Cornwall P. W. Jolliffe, Hugh Phillips, John D. Troup, Robert E. H. Daniel, Stanley A. Alder, Thomas L. Collins, Reginald F. Howard, John V. Read, Ernest L. Pegge, Reginald F. Tindall, William C. Stringer and Felix C. Rowe.

To be Second Lieutenants (on probation): Merric W. Bovill; Feb. 14th, 1916. Feb. 23rd, 1916: Montague R. N. Jennings, Wilfrid R. Snow, Edward R. Yates, Ivan L. Knight, Francis H. Hodgson and Paul F. W. Bush.

Royal Flying Corps (Territorial Force).

The following appeared in a supplement to the *London Gazette* issued on the 26th ult. :—

Hampshire Aircraft Parks.—William S. Farren to be Second Lieutenant (on probation); Feb. 21st, 1916.

Central Flying School.

THE following appeared in a supplement to the *London Gazette* issued on Feb. 28th :—

Instructor.—Lieut. (Temporary Capt.) Claude G. S. Gould, R.A., a Flight Commander, Military Wing, and to retain his temporary rank whilst so employed, vice Temporary Capt. Hon. W. F. F. Sempill (Master of Sempill), Special Reserve; Feb. 12th, 1916.

An Aeroplane Squadron from Australia.

AUSTRALIA has already contributed liberally in personnel and matériel to the flying services, and it is now announced that an offer made by the Commonwealth of an aerial squadron has been accepted by the War Office. Comprising 28 commissioned officers

and 180 men, the squadron has already been provisionally organised in Australia, under the command of Colonel Reynolds, who has been head of the Werribee Flying School, and was formerly at Camberley Staff College. The flying machines, it is stated, will be sent from England to the front.

HONOURS.

Further Honours for Naval Air Workers.

A SPECIAL supplement to the *London Gazette* issued on the 24th ult. contained the following:—

The King has been graciously pleased to approve of the appointment of the undermentioned officer to be Companion of the Distinguished Service Order:

Flight Sub-Lieutenant CHARLES WALTER GRAHAM, R.N.
For his services on December 14th, 1915, when, with Flight Sub-Lieutenant Ince as observer and gunner, he attacked and destroyed a German seaplane off the Belgian coast.

The King has further been graciously pleased to approve of the award of the Distinguished Service Cross to the undermentioned officers:

Captain DUDLEY LEIGH AMAN, R.M.A.
For his services with the Royal Marine Artillery Anti-Aircraft Brigade. Captain Aman has commanded two sections of anti-aircraft guns in the salient of Ypres continuously since May 3rd, 1915, with marked success, and has shown great ability and zeal, and a fine example of coolness and courage under fire.

Temporary Captain GUY EVANS, R.M.
For his services with the Royal Marine Artillery Anti-Aircraft Brigade. Captain Evans has commanded a section of anti-aircraft guns in the salient of Ypres continuously since May 12th, 1915, and has shown an example of conspicuous coolness and courage on every occasion under the continual conditions of fire to which the section has been exposed.

Flight Sub-Lieutenant ARTHUR STRACHAN INCE, R.N.
For his services as observer and gunner on December 14th, 1915, when, with Flight Sub-Lieutenant Graham, he attacked and destroyed a German seaplane off the Belgian coast.

The following awards have also been approved:

To receive the Distinguished Service Medal.
Motor Driver FRANK BAKER, R.M.A., 622 (S.).
P.O. Mechanic SPENCER CRISP, O.N. F. 956.
P.O. Mechanic MALCOLM ANDREW LOCKIE, O.N. F. 1075.
Senior Reserve Attendant THOMAS MCNEILL, R.N.A.S. B.R., O.N. M. 10299.
Motor Driver JOHN ERNEST THOMPSON, R.M.A., 552 (S.).

French Honours for the R.F.C.

In the list of British officers and men upon whom the French President has conferred honours for distinguished services, as announced in a supplement to the *London Gazette* issued on the 24th ult., may be noted the following:—

The Roll of Honour.

THE Secretary of the Admiralty has announced the following casualties:—

Under date February 18th:

Slightly Injured.
Probationary Flight Sub-Lieutenant G. Dover Melville, R.N.

Under date February 25th:

Injured.
Flight Sub-Lieutenant Hugh L. Francis, R.N.

Under date February 27th:

Killed.
Flight-Lieutenant Harold Rosher, R.N.

The following casualties in the Expeditionary Force have been reported from General Headquarters to the War Office:—

Anti-Aircraft Guns.

REPLYING to questions put in the House of Commons on the 24th ult. by Sir A. Markham, Colonel Lee said that under instructions issued on February 10th the manufacture of certain anti-aircraft guns for home defence was given priority over that of certain classes of field guns, of which the existing and prospective deliveries were so large that it was possible to adopt the above course without detriment to military interests. There was no intention of taking any action detrimental to the interests of our forces in the field.

The President of the French Republic has bestowed the decoration of the Legion of Honour, with the approval of His Majesty the King, on the undermentioned officers in recognition of their distinguished service during the campaign:

Croix d'Officier.

Major and Brevet-Colonel (Temporary Brigadier-General) W. S. BRANCKER, R.A.

Croix de Chevalier.

Captain and Brevet-Major (Temporary Lieutenant-Colonel) J. H. W. BECKE, Notts and Derby Regt. and R.F.C.
Captain (Temporary Lieutenant-Colonel) G. W. P. DAWES, R. Berks Regt. and R.F.C.
Captain J. T. C. MOORE-BRABAZON, Royal Flying Corps (Special Reserve).
Lieutenant (Temporary Captain) H. R. NICHOLL, Royal Flying Corps (Special Reserve).
Temporary Second Lieutenant (Temporary Captain) E. D. HORSFALL, Rifle Brigade and R.F.C.

The President of the French Republic has bestowed the decoration of "Croix de Guerre" on the undermentioned warrant officers, non-commissioned officers, and men in recognition of their distinguished service during the campaign:

1194 1st Class Air-Mechanic A. J. BRADFORD, Royal Flying Corps.
886 Sergeant R. G. BROBSON, Royal Flying Corps.
2891 Sergeant F. C. COURTNEY, Royal Flying Corps.
814 Sergeant W. C. ELLISON, Royal Flying Corps.
1629 Sergeant A. RANDLE, Royal Flying Corps.

The President of the French Republic has bestowed the decoration of "Medaille Militaire" on the undermentioned warrant officers, non-commissioned officers, and men in recognition of their distinguished service during the campaign:

555 Sergeant A. A. J. BEER, Royal Flying Corps.
152 Flight-Sergeant FRANK JAMES, Royal Flying Corps.
251 Sergeant-Major J. KEMPER, Royal Flying Corps.
4917 2nd Class Air-Mechanic F. S. MACKRELL, Royal Flying Corps.
7146 Corporal R. S. NORTHCOTE, Royal Flying Corps.

There are no restrictions as to the occasions on which any of these decorations may be worn.

Under date February 20th:

Wounded.
Second Lieutenant C. H. Collins, Royal Warwick Regt., 13th Batt., and R.F.C.

Missing.
Second Lieutenant F. A. Garlick, Royal Flying Corps.
Captain W. Knox, Cameron Highlanders, 3rd Batt., and R.F.C.

Under date February 21st:

Wounded.
Second Lieutenant F. N. Hudson, E. Kent Regt. and R.F.C.

Under date February 22nd:

Wounded.
Lieutenant M. Henderson, 4th Seaforth Highlanders (City of Dundee) (T.F.) and R.F.C.

Undated:

Previously Unofficially reported Prisoner of War, now Officially reported Wounded and Prisoner of War.
Second Lieutenant J. G. McEwan, Royal Flying Corps.

In reply to further questions, Mr. Asquith said that the accelerated manufacture of anti-aircraft guns will not be to the detriment of the supply of the forces in the field. The priority given to the production of such guns, which was the result of a decision of the War Committee, will only affect certain classes of lighter ordnance with which the Army is already well supplied. Lord Kitchener made his view clear by a statement in another part of his speech, that "the people of this country do not desire to give too great importance to these attacks or allow them to affect our military operations."

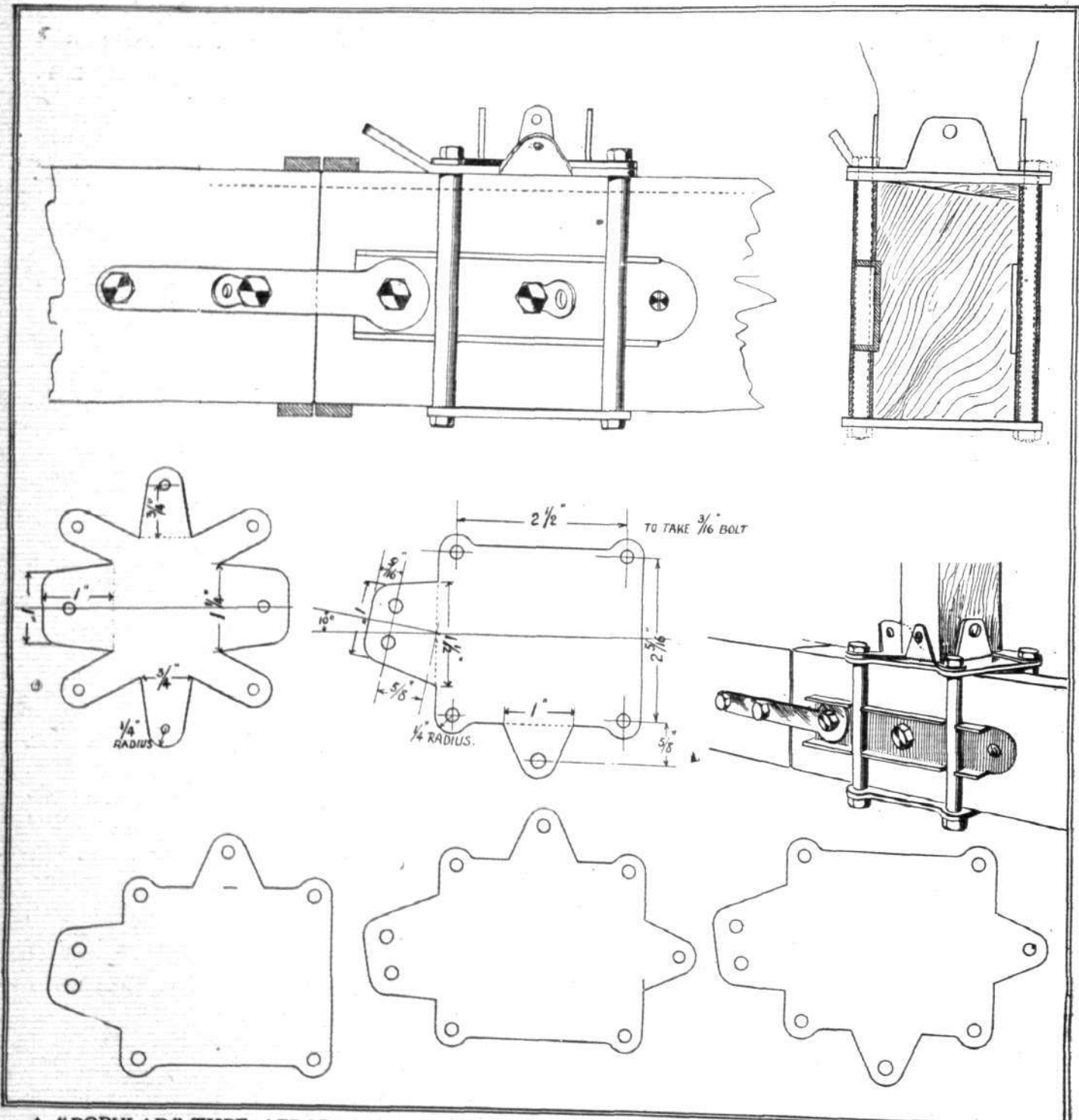
A "POPULAR" TYPE AEROPLANE DESIGN.

By C. M. POULSEN.

(Continued from page 158.)

OWING to the staggering of the wings the struts that run from the body to the under side of the top plane will be attached to a different set of formers from those supporting the struts which run from the body to the spars of the lower plane. The method of attachment, however, will be similar in both cases, with the exception, of course, that one set of struts project upwards and the other downwards. On account of this similarity the illustration reproduced in the right-hand top corner of page 157 of our last issue is not reproduced again this week. By turning the illustration in question upside down and imagining

the spar raised to the level of the top plane—the struts being, of course, lengthened accordingly and no connection made between the top *longeron* and the centre of the spar—an idea may be formed of the attachment to the former of the struts supporting the centre section of the top plane. The accompanying detail sketch shows the various clips at the point where the strut leaves the body. Immediately underneath the head, or nut as the case may be, of the bolt passing through strut and former is a chain link for the bracing wire of the body. Under that is another chain link whence a wire runs to the top of the



A "POPULAR" TYPE AEROPLANE DESIGN.—Drawings of some of the wiring plates and other spar fittings.

other centre section strut. Between these two chain links and the strut is interposed a washer. Working in a recess in the strut, between it and the former, is a longer chain link, which serves as an anchorage for the bracing wire that runs to the top of the corresponding strut on the other side of the body. Finally, a wiring plate of the shape shown adjoining the fitting in question in the before-mentioned illustration in our last issue rests against the former to which it is secured at one end by the bolt supporting the various clips just described, and at the other by the usual short bolt employed for the wiring plates. It may be objected that a recess deep enough to accommodate all these clips will tend to weaken the strut, but it should be remembered that at this point the strut has a depth from front to back of about $2\frac{1}{2}$ ins.

By thus having the struts passing through the body from top to bottom, the space inside the pilot's cockpit is reduced to about 1 ft. $8\frac{1}{2}$ ins. from side to side, but there will still be sufficient space left for him to afford free working of arms and legs when operating the controls. In any case, we are still at an advantage in comparison with a square type of fuselage of the same width, since it is only at the points where the struts occur that the space is restricted to 1 ft. $8\frac{1}{2}$ ins.

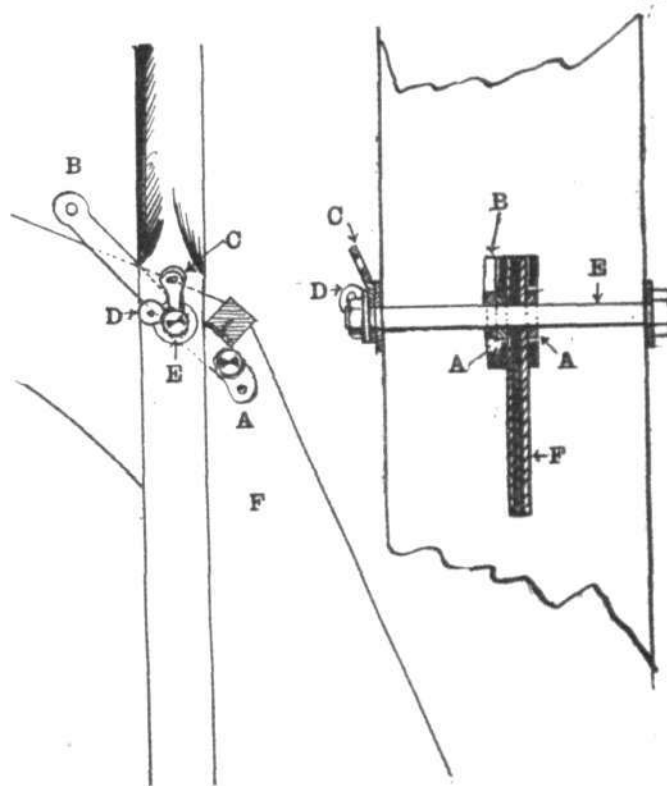
Reverting to the attachment of the body struts to the lower wing spars, or, more correctly speaking, to the spars of the centre section of the lower plane, which was briefly indicated in our last issue, this forms the subject of others of the accompanying drawings. It was then suggested that an oval strut socket be welded to the top of the wiring plate. Since, however, it might be difficult for an amateur to make a welded joint and come rather expensive in case he had to have these made by a firm in such small quantities as would be required for one machine, I have shown in the sketches an alternative method. Those in a position to undertake welding and who prefer it could, of course, still employ that form.

Our illustrations show the suggested form of wiring plates for the left-hand front strut of the centre section of the lower plane. On the top of the spar is placed a 10-gauge plate of the form shown, the dimensions being for a spar 2 ins. wide from front to back. Four bolts pass through the four holes in the plate, two on each side of the spar, and through corresponding holes in a similar plate underneath the spar. In order to prevent the plate from bending, each of these bolts passes through a length of steel tube slightly shorter than the vertical depth of the spar. When the bolts are tightened up and begin to grip the spar, the lips in which are the bolt-holes will meet the ends of the tubes, and are thus prevented from bending as well as from pressing the wiring plate into the spar. As the slope of the top and bottom of the spars would cause the bolt heads to slope in relation to the wiring plates, I suggest levelling these up until a rectangular section is obtained by interposing between them and the spar a thin piece of wood shaped to a triangular section. As regards the front spars, these are so nearly horizontal on the under side as to render any such packing unnecessary, but the top of the front spar and both top and bottom of the rear spars will probably require the packing.

On the drawing of the wiring plate are shown the lips from which the bracing wires or cables are taken. The one on the side is shown with two holes, as it would, I think, be advisable to have the lift wires in duplicate. The angle which this lip forms with the centre line of the wiring plate is 10 degrees, this being the angle formed by having the top plane 1 ft. 6 ins. ahead of the lower one, and with the outer struts a distance from the inner equal

to what will be required in our design. It will be clear that an exactly similar wiring plate will be used for the inner front strut on the right-hand side, only in this case the plate will be reversed, i.e., turned with its other side upwards. The various other wiring plates to be used are shown in the other drawings, the dimensions of which are not given since they are the same as for the bottom of the inner left-hand front strut.

As there would be, owing to the angle of the bracing wires, a tendency for the wiring plates to slide along the spars, means will have to be provided to prevent this. For this purpose I suggest a strip of 12-gauge steel, having flanges bent outwards at right angles to the sides of the spar, and provided with slots to accommodate the bolts and their tubes. These strips would be let into the sides of the spars. For joining up the root of the wing spars to those of the centre section another strip of steel of the form shown could be employed. The whole arrangement will, I think, be clear from an inspection of the dimensioned drawings and perspective sketch of this joint. In the sketch the outer rib of the centre section



A "POPULAR" TYPE AEROPLANE DESIGN.—Sketch showing general arrangement of body wiring plates.

and the inner rib of the wing have been omitted for the sake of clearness. These ribs would be cut out of a solid piece of spruce, and have openings in them for the spars. Recesses would also have to be provided for the steel strips mentioned above. In planning the joint between centre section and wing, care should be taken to have the ends of the spars meet, but to place the ribs a fraction of an inch from the end of the spars, say, one-sixteenth of an inch, so as to leave a little space between the two ribs. In this way the effect of the dihedral angle of the wings will only be to raise one rib slightly and to cause the top of the ribs to touch, while a small opening will be left between them on the under side.

There now remains to design a method for securing the ends of the struts to the wiring plates other than by a socket welded on to the plate. In one of the accompanying drawings is shown the clip suggested for this purpose.

A 14-gauge plate is cut out to the shape shown, and of such proportions as to fit the wiring plates in such a manner that the four bolts will secure the two plates. The lips of the plate are bent up at right angles to the base, two resting against the front and back of the strut, which is at this point of rectangular section, and two against the sides. A clip of this form would be quite easy to make, and would effectively secure the strut to the wiring plate. As shown, this clip is designed for a dimension of strut ends of 2 ins. by 1½ ins. If

(To be continued.)

THE "X" AIRCRAFT RAIDS.

IN view of the decision of the Government not to allow details of aircraft raids to be published, we are, as before, giving to each one an index number. Eventually, when details are available, we shall give the respective information under these index numbers, which will facilitate easy reference to each particular raid.

The following announcement has been officially issued:—

"X 17" Raid, January 31st.

"War Office, Feb. 25th.

"The following are the final figures of casualties from the air raid of January 31st:—

	Men.	Women.	Children.	Total.
Killed	27	25	15	67
Injured	45	53	19	117
	72	78	34	184

"These figures are greater than those previously given (59 killed, 101 injured), because several persons reported as injured have died of their wounds, and because the police have found on further inquiry that some children under 16 had been returned as adults and that several cases of slight injury had been treated at hospitals and sent home without any record being kept.

"The number of bombs now known to have been dropped is 393."

Another German Version.

Surpassing all previous records in mendacity, the following story was circulated by the notorious Wolff Bureau to the German Press on February 24th:—

"From authoritative quarters we learn the following facts about the results of the air attack on the night of January 31st:—

"1.—LIVERPOOL.

The main objects of the attack were the docks and the port and factory areas. The effect of the bombs was good; during the return voyage of the airships an enormous fire was still visible at a great distance. A number of bridges and harbour areas were so severely damaged that it is for the present no longer possible to use them. It is said that a number of ships in the Mersey were badly damaged—among others a cruiser lying below Birkenhead and a transport ship of the Leyland Line. Stables containing 200 horses were destroyed by fire, and it is said that the horses and the Canadian troops guarding them were killed. Great damage was done at Birkenhead, Garston and Bootle. The Booth Line and Yeoward Line have been severely injured by the partial destruction of their docks. Three ships suffered great injury. The neighbouring dry docks and engine works, as well as the 'Birkenhead Dry Dock, Engine and Boiler Works,' were completely destroyed. In all, more than 200 houses were destroyed by bombs or fire. At the mouth of the Mersey (in Bootle) a powder factory was completely destroyed. At Crewe, south-east of Liverpool, the railways were greatly damaged, so that traffic with London was interrupted. At this point military encampments also are said to have been set on fire.

"2.—MANCHESTER.

"The objects of attack were mainly foundries, which were sprinkled with bombs with good success. Two foundries and two large ironworks were completely destroyed. A number of other factories suffered considerable damage.

"3.—SHEFFIELD.

"In the south of the town two foundries were bombed, and one of them was in great part destroyed. Several large industrial areas and the railway were bombed, and it is said that two sheds which

different sized struts were employed, the clip would, of course, be designed accordingly. Eight of these socket clips will be required for the inner struts. For the outer struts similar clips will be employed, but having the lips which rest against the sides of the struts bent forward at an angle corresponding to the forward slope of the inter-plane struts. Yet a different clip will be required for the attachment of the rear chassis struts to the rear spar of the lower plane, but this will be dealt with when the question of chassis design comes to be considered.

served military purposes were destroyed. Large fires were observed for a long time after the attack.

"4.—NOTTINGHAM.

"Attacks were made on large factory areas and foundries, and very good effects were observed. A battery which had fired without effect upon our airships was reduced to silence. A munition factory and several factory areas were badly damaged. At Grantham, east of Nottingham, the railways were destroyed, so that traffic had to be stopped for several days. By far the greatest amount of damage was done at Sheffield and Nottingham; London insurance societies estimate it at £400,000.

"5.—BIRMINGHAM.

"Two large Government works and two munition factories were completely destroyed, and a brewery was damaged. Great damage was done generally in Staffordshire, Shropshire, Cheshire, Leicestershire, Lincolnshire, and Yorkshire. At Eccleshill, near Bradford, a munition factory and three spinning works were destroyed, and at Partington 22 houses were destroyed by one bomb.

"6.—HUMBER.

"A battery which fired without effect upon our airships was attacked and reduced to silence. Guns and searchlights belonging to the battery were destroyed. Bombs were thrown upon a number of industrial areas on the Humber and on a large foundry, good success being observed everywhere. At Grimsby the shipbuilding yards and warehouses, as well as several cargo and fishing vessels, were severely damaged. A hay and straw warehouse was burned down, considerable damage being thus done. Between Hedon and Salt Enden (below Hull) a powder magazine was destroyed. Near Hull a smelting works was badly damaged. In Hull itself the devastation is said to have been very great, and to have almost equalled that in Sheffield and Nottingham. A block of houses in King Street was entirely destroyed. The railway and port areas suffered so much that there is great difficulty in carrying on work. Several trading ships lying in the docks are said to have been damaged. Above Goole a foundry was badly damaged. In the Humber the small cruiser 'Caroline' and the destroyers 'Eden' and 'Nith' were sunk. The small cruiser 'Caroline' went down in six minutes; 31 men of the crew were killed, 58 wounded, and 47 drowned.

"7.—GREAT YARMOUTH.

"A factory and various industrial areas were bombed, good effects being observed, and on the English east coast yet another battery was silenced and the English steamer 'Franz Fischer' was sunk by one of the airships."

Neutral Opinion.

What is thought of this effusion in some neutral countries is indicated by the following extracts from Dutch papers:—

The *Handelsblad* comments:

"How are the German airmen to know the details so minutely? Great Britain has given an absolute démenti. Moreover, the Germans are exaggerating the moral effect. The impression we have received from a perusal of the English papers is that the effect is totally different from what the Germans think."

The *Telegraaf* says:

"If one compares the official British statement concerning the damage done by the Zeppelin raid with the conclusions set forth in the above telegram, one must come to the decision that the Wolff Bureau is possessed of a high degree of impudence. The British Government categorically denied the destruction of British war vessels as a piece of fertile invention."

Mr. Fell said he had the most explicit information that not only had they no orders to fire, but that there were actual orders not to fire at the Zeppelins, however close they might be.

Mr. Tennant: I wish the hon. gentleman had been so good as to give me the source of his information.

Firing on Zeppelins.

REPLYING to Mr. Fell, Mr. Tennant said that the orders, formerly announced, that all Zeppelins were to be fired at if and when they offered a target still held good. Ball cartridge was available for the purpose in the hands of the troops.

The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

Annual General Meeting.

THE Annual General Meeting of the Members of the Royal Aero Club of the United Kingdom will be held on Tuesday, March 28th, 1916, at Piccadilly, London, W.

Notices of motion for the Annual General Meeting must be received by the Secretary not less than twenty-one days before the Meeting, and must be signed by at least five Members. The last day for the receipt of notices of motion is Tuesday, March 7th, 1916.

Committee.

In accordance with the rules, the Committee shall consist of eighteen members. Members are elected to serve for two years, half the Committee retiring annually. Retiring members are eligible for re-election.

The retiring members of the Committee are:—

Lieut.-Col. R. K. Bagnall-Wild, R.E.
Lieut.-Col. W. D. Beatty, R.E.
G. B. Cockburn.
Lieut.-Col. F. Lindsay Lloyd.
Capt. J. T. C. Moore-Brabazon, R.F.C.
Com. C. R. Samson, R.N., D.S.O.
A. Mortimer Singer.
T. O. M. Sopwith.

The Marquess of Tullibardine, M.V.O., D.S.O., M.P.

Any two Members of the Club can nominate a Member to serve on the Committee, provided the consent of the Member has been previously obtained. The name of the Member thus nominated, with the names of his proposer and seconder, must be sent in writing to the Secretary not less than fourteen days before the Annual General Meeting. The last day for the receipt of nominations is Tuesday, March 15th, 1916.

Extension of the Hours of Opening the Club.

The Club is now open from 9 a.m. to 10.30 p.m. each day, including Sunday.

THE FLYING SERVICES FUND administered by THE ROYAL AERO CLUB.

THE Flying Services Fund has been instituted by the Royal Aero Club for the benefit of officers and men of the Royal Naval Air Service and the Royal Flying Corps who are incapacitated on active service, and for the widows and dependants of those who are killed.

The Fund is intended for the benefit of all ranks, but especially for petty officers, non-commissioned officers, and men.

Forms of application for assistance can be obtained from the Royal Aero Club, 166, Piccadilly, London, W.

Subscriptions.	£	s.	d.
Total subscriptions received to Feb. 23rd, 1916	10,559	0	11
Collected at the Westland Aircraft Works, Yeovil (Twenty-first contribution) ...	0	6	8
Staff and Workers of Gwynnes, Ltd. (Tenth contribution) ...	9	15	5

Total, February 29th, 1916 ... 10,569 3 0
166, Piccadilly, W. B. STEVENSON, Assistant Secretary.

FROM THE BRITISH FLYING GROUNDS.



London Aerodrome, Collindale Avenue, Hendon.

Grahame-White School (R.N.A.S.).—Straights with Instructor last week: Probationary Flight Sub-Lieuts. Carr, Donald, Gibbs, Griffin, How, Melhado and Wigglesworth. Circuits with Instructor: Probationary Flight Sub-Lieuts. Kingsford, Powles, Templeton and West. Circuits alone: Probationary Flight Sub-Lieuts. Aitkin and Rees. *Brevet* test A: Probationary Flight Sub-Lieut. Evans.

Grahame-White Civilian School.—Straights with Instructor: Messrs. Baragar, Box, Butler, Hathaway, Hillaby, Holman, Spencer, Matthews, Rigby, Sandys, Scheidt, Sloden, Tanner, Walk, Kryn and Williams, S.

Instructors during week: Messrs. Biard, Hale, Manton, Pashley, Russell and Winter.

Beatty School.—The following pupils were out during last week: Messrs. Brand, Cumming, Drysdale, Edwards, Samter, Willmet, Smith, Stabley, Ping, Branford, Sellers, Halford-Thompson, Parsons, Hungwan and Mossop.

The instructors were Messrs. G. W. Beatty, W. Rochekelly, G. Virgilio, R. W. Kenworthy, A. E. Mitchell, L. L. King and H. Fawcett, the machines in use being Beatty-Wright dual-control and single seater propeller biplanes and Caudron tractor biplanes.

It will be noted that a seventh instructor has been added to the staff in the person of Mr. H. Fawcett, who took his certificate from this school.

Hall School.—The following pupils were out during last week receiving instruction:—With C. M. Hill: Ormerod, Arnsby, Dodds, Lieut. Cooke, Smith (1), Collins and Thom. With J. Drew: Millburn, Chapman, Rochford, Smith (2), Roberts and Neal. With A. Chave: Worswick, Halliday, Longton, Rayne, Collier, Duncan, Mahoney and Taylor.

Machines in use: Hall Government type tractors.

London and Provincial Aviation Co.—Pupils doing rolling last week: Messrs. Hay, Archer, Dawson, Aldous, Houba and Scott. Doing straights: Messrs. Palethorpe, Clement and Vertongen. Circuits and eights: Messrs. Lambert and G. V. Aimer.

Instructors: Messrs. W. T. Warren, M. G. Smiles, H. Sykes and W. T. Warren, jun.

Royal Aero Club certificates were taken by Messrs. G. V. Aimer and E. Lambert, who both passed their tests well.

Ruffy-Baumann School.—Pupils with instructor last week: Messrs. Wood, Winter, Westlake, Bolton, Dobson, D'Opstael, Cuthbertson, Thomsen and Laidlaw. Straights



A trio of pupils who have recently, at the Ruffy-Baumann School, passed the tests required for qualifying for the Royal Aero Club certificates. Reading from left to right: Mons. Charles de Grauw, Mr. T. Vernon, and Mons. W. O. Coppens.

and circuits: Messrs. Laidlaw, Thomsen, Cuthbertson and D'Opstael.

Instructors for the week: Messrs. Edward Baumann, Felix Ruffy, Ami Baumann and Clarence Winchester.

Machines in use: 60 and 50 h.p. Ruffy-Baumann tractor biplanes.

Bournemouth School.

Pupils doing rolling last week: Messrs. O. Wilson, J. Wilson, Morley, Devos, W. Mouton, G. Mouton and

Morris. Straights alone: Messrs. Dubois, Meeus and H. Smith. Half-circuits alone: Simpson and Bonnevie.

Instructors: Messrs. F. King, J. G. Woodley and S. Summerfield.

Three Caudrons in use.

Five hours of school work were put in on Thursday. Very little practice during the remainder of the week owing to the bad weather. Messrs. King and Woodley gave several exhibition flights during the week.

The R.F.C. Waiting List.

REPLYING to Mr. Fell in the House of Commons on Tuesday, Mr. Tennant said that there were on the waiting list of the Royal Flying Corps 835 officers and 521 civilians. The establishment was not yet complete.

The Dover Air Raid.

WITH regard to the statements made by Capt. Bennett-Goldney in the House of Commons on Monday week, as recorded in our last issue, Mr. Tennant (Under-Secretary for War), on the 22nd ult., said it was desirable that the startling and dramatic statements made should receive as early a reply as possible, because some of them were wholly without foundation. When the two hostile aircraft came the Admiralty were in charge of our air defences. The hon. member stated that the mess to which our officers had gone was two miles from where the aeroplanes were kept. That was a mistake—it was within 200 yards. He stated also that a pilot went up armed only with a Winchester rifle. What really happened was that he went up in an aeroplane belonging to a squadron in process of formation, and not yet armed; and he was allowed to go up because the machine was a fast one. The right hon. gentleman did not know whether there was a rifle or not, but he believed there was. As everybody knew, it was not possible to catch an aeroplane unless the pursuer started on very good terms, and in this instance our aeroplane did not have a fair chance. But to say, as the hon. member did, that the whole thing was in a state of muddle was not only contrary to the fact, but a wrong thing to say, because it was calculated to spread depression both locally and over a wider area.

The Walmer and Lowestoft Raids.

REPLYING to Sir J. Lonsdale in the House of Commons on the 23rd ult., Mr. Balfour, First Lord of the Admiralty, said that in the attacks on Lowestoft and Walmer on the 20th ult. the enemy seaplanes approached at a very great height, and were not observed either by look-outs or patrols until they dived just before their bombs were dropped. In each case naval fighting aeroplanes and seaplanes from the nearest naval air stations proceeded immediately in

chase, but were unable to sight or get into touch with the enemy machines.

Another question by Sir J. Lonsdale as to whether any military aeroplanes were sent up drew from Mr. Tennant, Under-Secretary for War, the admission that no military aeroplanes were sent up against the German seaplanes which dropped bombs over Lowestoft. As regards Walmer, the nearest station received information at 11.35 a.m., and the first aeroplane ascended at 11.45 a.m.

Police Powers and Bright Lights.

IN the House of Commons on the 24th ult., Major Hunt asked the Home Secretary whether he was aware that on the last Zeppelin raid a bright light was shown in a top window of two different houses, and that in both cases the police tried, but were unable, to get into the house, and declared that they had no lawful authority to break in; and, in view of this, would he take steps to strengthen the Defence of the Realm Act so as to give the police power to force an entrance into houses in such cases.

The Home Secretary stated that the police were already empowered to enter any premises or commit any act necessary in order to deal with lights which contravened the order. They had been instructed to this effect. If the hon. member would give him particulars of the incidents referred to, he would have enquiries made.

The Navy League and Aircraft Policy.

AT a special meeting of the Emergency Committee of the Navy League held on February 23rd, the question of aircraft policy was carefully considered in consultation with competent experts. It was unanimously decided that an urgent appeal be made to His Majesty's Ministers to concentrate national effort for aircraft construction with a view to the maintenance of vigorous offensive policy rather than from the standpoint of defence. In the opinion of the League, there should be no diversion of production energy in the provision of aircraft for the full needs of the Navy and Army, in response to clamour for defence against raids. The League holds that the soundest scheme for effectively dealing with enemy raids is the improvement and expansion by every means possible of the striking efficiency of the aerial wings of both the fighting services.



By R. P. HEARNE.

The Destruction of "L.Z. 77."

THE French artillerists are to be complimented on bringing down a Zeppelin, the so-called "L.Z. 77." It is to be regretted, somewhat, that the ship was so badly crumpled up in the process, as there is evidence to show that it had several new and interesting features.

Zeppelin Developments.

As regards the number of the ship, we have ample reason to doubt its accuracy. Even if the alleged figures "77" were clearly seen, they do not give a clue to the actual number of Zeppelins built. The Germans have a playful way of altering and exaggerating their figures in all that pertain to military and naval matters, and with reference to Zeppelins we have sufficient data to prove that nothing like seventy-seven vessels have been built. Zeppelin numerals are like the fancy numbers one may see on lottery tickets.

Additional Propellers.

But the most noteworthy thing about the latest wrecked Zeppelin is the existence of a propeller on one of the gondolas or cars. The usual Zeppelin power transmission is carried out by long shafts which drive propellers mounted on brackets alongside the ship itself. What new development does the mounting of one or more propellers on the gondolas signify?

The main drive must go through the big blades at the side of the ship, for it would be most undesirable and dangerous to mount all the propellers under the vessel. It looks to me as if the "L.Z. 77" was a reconstructed military Zeppelin, to which more speed was given by the addition of extra propellers mounted on the gondolas. Or, perhaps, these subsidiary blades were fitted to improve the manœuvring powers of the ship.

That the experiment was not altogether a success may be surmised, for one of the French reports tells us that the ship when near Brabant-le-Roi was making rather slow headway against the wind, and in passing over a well-gunned region of the French battle area, it made an excellent target for skilled artillerists. Moreover, it was flying somewhat low, and undoubtedly it had a heavy load of bombs on board.

A Score for the Guns.

Many rash conclusions have been drawn from the affair. For example, it has been asserted that what the French have done on this occasion can be repeated by us during each raid. This might be so if we could find in any part of England the close array of guns which must exist in the region of Brabant-le-Roi. Some important centres may have a concentration of anti-aircraft artillery approximating to that massed in the French war zone, but it is obviously impossible to have such intensive protection all over this country.

A New Gas?

Some ridiculous people in Germany and nearer home have been talking of new gas for Zeppelins which is not inflammable. Of course this is nonsense, and the fate

of the "L.Z. 77" does not bear out their statements. It is very unlikely, indeed, that any safe and effective substitute for hydrogen can be found, and the fierce inflammability of this gas in the presence of air is a danger which must be put up with in airships. Coal gas is quite as troublesome in this respect, and of course it does not give anything like as good a lifting power for the same volume.

The Fire Peril.

As if to add to the fire danger, we are compelled to use petrol as a fuel for airships. Hydrogen exudes from every pore of the gas envelopes, petrol vapour tends to collect in every unventilated corner of the engine compartment, and thus a naked flame is most unwelcome in the vicinity of an airship. The importance of this point is not to be overlooked in defence against Zeppelins. An incendiary shell is the best mode of destroying enemy airships.

Petrol Shells?

The Germans have long talked of petrol shells, which on explosion would spray burning petrol on the object aimed at. I do not know if this form of shell was employed by the French at Brabant-le-Roi, but evidently they had a very business-like article, which on piercing the gas-bags ignited the escaping hydrogen. The flame shell is certainly the most effective for Zeppelin destruction, but it has attendant dangers which render it suitable only for highly-skilled gunners.

New Naval Zeppelins.

Several probable and many impossible developments are foreshadowed in the new Zeppelins, some of which may be launched against us this spring. We can flatter ourselves that the best vessels are designed exclusively for our shores, as well for the reason that the Germans hate us with a very particular hate, as for the reason that raids over England are less dangerous for the enemy than attacks on French towns which necessitate the crossing of the battle line.

We may reasonably expect a steady development in speed and in ascensive power in the new naval Zeppelins, and these two factors will render terrestrial defence more difficult. Some of the latest Zeppelins have been credited with a speed of over sixty-five miles an hour in still air, but it might be hinted that timing an airship from the ground leads to many inaccuracies, as the land observer has no knowledge of the wind currents which may exist in the region where the airship is travelling.

But that the Zeppelin is an efficient high-speed craft cannot be denied, and it is not beyond the bounds of possibility that new craft can be evolved showing speeds up to eighty or one hundred miles an hour in still air. The Germans have very fine aerial engines, which have been steadily developing for years under the most favourable conditions, and this progressive policy yields highly satisfactory results, as compared with the spasmodic effects attained in other countries by vacillating policy in constructional and technical matters.



Evolution and the R.F.C. Hospital.

THERE is no real end to any real existence, neither is there any real end to anything, nor any beginning fathomable to mankind. All things that we see in certain forms to-day are but objects in a stage of evolution. They are not at their beginning, having been something else before, neither are they at their ending, but will again materialise, perhaps centuries hence in some form which we to-day would call strange. A chair is to us but a thing of wood formed into such shape that we may sit down upon it in comfort. Tracing its beginning we are not likely to go further than to see it as a tree growing in the forest. Viewing its ending, we but see it broken and useless, ascending and being scattered in the form of smoke from its burning. Yet as a tree it was but taking another shape in the scale of our understanding. Thousands of years previously it might have been an animal, which dying, its juices and elements were once more returned to Mother Earth to mingle with a seed germ, itself but returning in that form in its stages of evolution. And once more through this re-formation of matter in a new manner, life is restarted in the tender shoot which shall grow to the mighty forest giant. The old chair ascending as smoke at its burning, is but once more returning its particles to the lap of nature in a hundred different forms, heat, smoke, moisture, carbon, nitrates, &c., all of which will be restored to the earth in due course, to again mingle and commingle with other elements, to be formed into something of which we can imagine nothing, much less name. For of the earth is everything, and to the earth must everything return, saving only that which we call Soul.

A marble tabletop was probably once an animal; a thousand years hence it may possibly become food for man. For nature is ever working, forming and reforming, and movement has no beginning, and no ending, leading none can guess where.

The wavelets set up by the casting of a stone into the sea is not the beginning of that movement. It goes back through the muscular power of the thrower, through the food which has fed that power, back to animal and vegetable life, in themselves but forms of motion receding in their initiative beyond time interminable.

The stone thrown will be returned to the ocean bed from which it emerged, to be ground into sand by the restless water, later perhaps to give its elements to stimulate some sea-vegetation, which shall be eaten by fish, to be in their turn eaten by man, feeding his brain to produce great works, and his body to propagate his species.

The little wavelets are but an infinitesimal part by which, with other influences, the whole oceans of the world are kept moving. So it is with the human walk in life. Some little ripple of initiative sets in motion a scheme which at once begins to attach to itself and set moving all sorts of particles—human and material—which go to make up a whole, instrumental in helping on to fruition. The most unexpected objects find themselves

attached to each other by a common interest, that of progress, and so the world goes forward and onward in stately progression.

Who would have associated, for instance, the Royal Photographic Society of Great Britain, the Royal Flying Corps' Hospital, and the direct welfare of the nation?

Here we have photography, surgery, medicine, and flying—four seemingly independent lines of research with no apparent affinity.

From the first obtaining by photography of an image of silver on copper nearly a hundred years ago, the movement has progressed through the investigations of such great men as Fox Talbot, Archer, Swan, and hundreds of others, making possible the birth, sixty-three years ago, of the Royal Photographic Society.

The idea of flying can be traced back to the fifteenth century, and but a few years ago came before our notice through the efforts of Lilienthal, Pilcher, Chanute, and, later, by the Wright Bros., the Farman Bros., Voisin, and in England through the investigations of Roe, Cody, Flanders, and all those early pioneers of aviation. So came the conquest of the air, making possible the Flying Services of to-day.

Surgery and medicine have followed their own lines adown the centuries, involving the names of men and women entirely great, but whose names, with the exception of the very few, I, as an outsider, know little, yet even to me have their great deeds and discoveries percolated.

And all this time these four movements, surgery, medicine, flying, and photography, were travelling side by side, ready to help in whatever direction their services could be utilised, and become productive, eventually to become attached and travel hand-in-hand, so making the necessary adjunct of the R.F.C. Hospital possible. For we have in the R.P.S. Dr. Atkin Swan, who is intimately concerned with the Society and its walks, and we have his interest materialising in the R.F.C. Hospital, which is the emanation of his brain in connection with that of Mrs. Hugh Paynter, and which was dealt with recently in "FLIGHT."

Therefore we have now closely in touch the leading names in Surgery, Medicine, and Flying. The one great link between them all being the great recorder of facts—"Photography"—which has visionised so much valuable information through the Air Services for the benefit of the nation.

In these various wavelets are found the same rules governing constituents and elements, and so, following the set course of evolution, they commingle and create the whole, which is what nature is always striving for through her own channels.

So it comes about that these various elements were brought together in one congenial homogeneous mass at a delightful gathering on February 19th at the Hotel Cecil, on the occasion of the annual luncheon of the Royal Photographic Society, when about a hundred

members and guests fraternised under the chairmanship of the new President, Mr. John H. Gear, F.R.P.S.

The War Office staff were represented by Colonel C. Marindin, Major W. Warner and Captain C. Campbell, all of the Royal Flying Corps, together with their able Chief, General Sir David Henderson, K.C.B.

Commander Painter, R.N., for the Navy, pointed out how greatly he was indebted for photography and its valuable services in recording the effects of projectiles.

The toast of "The Army" was handled by the President, and that of "The Royal Flying Corps" by the Vice-President, Dr. C. Atkin Swan, who gave the gathering some idea of the difficulties under which first class work was rapidly and efficiently carried out in the field. General Sir David Henderson in replying showed the incalculable value of photography in warfare, and in conclusion expressed the indebtedness of the Army in general, and of the Royal Flying Corps in particular, to the great services rendered by both amateur and professional photographers.

✱ ✱ ✱ ✱ PERSONALS.

UNDER the above heading will be published weekly particulars of a personal character relating to those who have fallen or have been wounded in the country's service, announcements of marriages and other items concerning members of the Flying Services and others well known in the world of aviation. We shall be pleased to receive for publication properly authenticated particulars suitable for this column.

Casualties.

Second Lieutenant ERIC A. CAVE, Royal Flying Corps, has been killed in action. He was the son of Mr. Arthur Cave, of Rushden, manager of the Standard Rotary Machine Company, and had crossed the Channel only eight or ten days before he was killed. Second Lieutenant Cave was 22 years of age, was an accomplished linguist, speaking French, German, and Italian fluently, and had travelled extensively in Italy and Germany. About two years ago he made translations of Mr. G. K. Chesterton's stories into German, but they were not published owing to some difficulties about the copyright. The gallant young officer was a journalist of considerable promise. He had occupied positions on the *Northampton Daily Echo* and the *Northampton Independent*, and at the time of his enlistment was on the staff of the *Yorkshire Daily Observer*.

Second Lieutenant T. G. HAKEWILL, N. Staffs. and Royal Flying Corps, who was killed on February 11th on active service in Egypt, was the son of George and Catherine Hakewill, of Bromley, Kent.

Flight Sub-Lieutenant BERNARD LEE was reported missing since February 15th, and his relatives have now received from the Admiralty the official intimation of his death by drowning. Lieutenant Lee was the younger son of Mr. C. Richards Lee, of the Admiralty, and the nephew of Mr. and Mrs. R. Goulburn Lovell, of Eastbourne. His brother is serving in France in the Seaforth Highlanders. The gallant officer, who would have been 21 years old next May, served in East Africa, where he went up a river in a boat conveying aeroplanes to be used in connection with the destruction of the German steamer "Königsberg." He received instruction in aviation at Eastbourne.

Captain VIVIAN HUGH NICHOLAS WADHAM, 1st Hampshire Regiment and Royal Flying Corps, previously reported missing, is now stated to have been killed in action over the German lines on January 17th last. Captain Wadham, who was born in December, 1891, was the eldest son of Mr. and Mrs. Hugh D. Wadham, of Thamesfield, Shepperton-on-Thames. He obtained his commission in the Hampshire Regiment from the Special Reserve in June, 1914, and was reported wounded in March, 1915. He was appointed Flight-Commander in the Royal Flying Corps in the following May.

Second Lieutenant W. WATTS, who was killed in action in France on January 17th, was first reported missing. About a fortnight later a German machine dropped a message in our lines saying that both he and the observer—Lieutenant O. C. Hayward—had been killed and buried with military honours at Ledeghem. Lieutenant Watts took his *brevet* at Hendon in August, 1913. He was an instructor with Mr. Beatty for some time, and on the outbreak of war joined the R.F.C. as Flight-Sergeant. He was awarded the Cross de Guerre for distinguished conduct at Loos, and shortly afterwards obtained his commission. The officer commanding his squadron writes that the service has lost a very valuable officer.

The meeting was entirely successful, and was expressive of the vitality of the Society in the sixty-third year of its existence. The excellent repast was simple, as becomes these strenuous times of war; and the dominant note of the meeting was the important service rendered by photography to both the Navy and Army, and this was reflected in the fact that the only toasts, apart from those of "The King" and "The Society," were "The Army," "The Navy," "The Royal Flying Corps," and "The Visitors."

And so we see in this bringing together by nature of four independent lines, evidence of her constant desire to further movement in her scheme of evolution, and incidentally to protect to the best of her ability those of her members whose full course of productive movement is not yet run. For what better picture could we have in this direction than the establishment, through the meeting of these lines, of a hospital where her disabled subjects shall be nursed and cared for until they again are fit to take up their allotted positions in the great movement of the universe?

Second Lieutenant DICK YATES, R.F.C., who was killed on the 11th inst. in action in Egypt, was the son of Mr. and Mrs. Yates, of Oporto. He was 22 years of age.

The funeral took place on February 24th at St. Pancras Cemetery, East Finchley, of Second Lieutenant ERNEST JOHN RADCLIFFE, Royal Flying Corps, who was killed accidentally at Brooklands on February 20th. The only son of Mr. and Mrs. Radcliffe, of Muswell Hill, he left the Artists Rifles to take up a commission in the Royal Flying Corps, and met his death while engaged in his last flight preparatory to receiving his pilot's certificate. The coffin was covered with the Union Jack, and a firing party was provided by men of the Middlesex Regiment. The bearers were six non-commissioned officers of the R.F.C.

Flight Sub-Lieutenant FRANCIS HAMILTON TOMS was killed while on active service at the Chingford Aerodrome on February 20th.

Marriages and to be Married.

On February 21st, at St. Andrew's Episcopal Church, Tain, by the Rev. Angus Cameron, KENNETH F. BALMAIN, Second Lieutenant, Royal Flying Corps, second son of Jas. C. H. Balmain and Mrs. Balmain, 21, Salisbury Place, Edinburgh, to ELIZABETH BELL, youngest daughter of John Souden, "Rhicullen," Oswald Road, Edinburgh.

The marriage between Lieutenant H. M. JULLEROT, Aviateur, attached to the Royal Naval Air Service, and Miss VIOLET PRIDHAM, youngest daughter of Mrs. Lawrence Pridham, of Sturt House, Bournemouth, will take place on March 7th at St. George's, Hanover Square, very quietly.

The engagement is announced between Flight Sub-Lieutenant G. G. OMMANEY, R.N., son of General Ommaney, C.B., Lostwood, Langford, Somerset, and DOROTHY EDITH, eldest daughter of Captain and Mrs. W. W. GASCOYNE, Westwell, Ashford, Kent.

The wedding of Miss KATHLEEN BETTY TERRY, younger daughter of Mrs. T. W. L. Terry, York, and granddaughter of the late Sir Joseph Terry, and Captain JOHN E. A. BALDWIN, 8th Hussars, now attached to the Royal Flying Corps, elder son of Mr. and Mrs. J. H. L. Baldwin, Thornton-le-Dale Hall, Pickering, took place on February 22nd at Holy Trinity Church, Micklegate, York. Lieutenant C. E. Anne, K.O.V.L.I., and Royal Flying Corps, acted as best man. The bride's brother is Mr. Harold J. Terry, author of the drama "The Man Who Stayed at Home."

Items.

Lieutenant-Colonel JOHN DUNCAN BERTIE FULTON, C.B., Royal Field Artillery, Assistant Director of Aeronautics, who died on November 11th, aged 39, left estate of the gross value of £6,191.

Colonel THOMAS EDWARD VICKERS, C.B., of 12, Stanhope Place, Hyde Park, late Chairman and Managing Director of Vickers, Sons and Maxim, Ltd., River Don Works, Sheffield, has left unsettled property of the value of £117,347.



FROM Adj.-Aviateur Louis Noel, who is with the Escadrille M.F., 88, Armée d'Orient, at Salonica, a letter is to hand. Also some snaps which will be seen from those we reproduce have an interest of their own. The one of the Caudron biplane starting off is of particular interest inasmuch as it shows the start for the first flight from Salonica, carried out by Sergt. P— on the 19th of October of last year. In its way quite historical.

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Out there air work is not exactly a holiday judging from Noel's experience which he describes as follows: "With regard to the flying, it is very, very hard, but we have got used to it by now. The air is very bumpy, sometimes without warning you get dropped from 2,600 to 1,900 metres, to be lifted up again to 2,900 metres. Nice, isn't it? The first time I said Brrr! but now we do not bother about it at all. It is not a joke, I assure you,

would be a little surprised were he to visit Hendon on a windy day now.

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"But —," continues Louis, "you forget everything in seeing the wonderful panorama. I can't describe it at all—it is splendid. And if you like Nature you must come out to enjoy a fine sunset. I got some photos. of



Adj.-Aviateur Louis Noel, with his wild dog at Salonica.

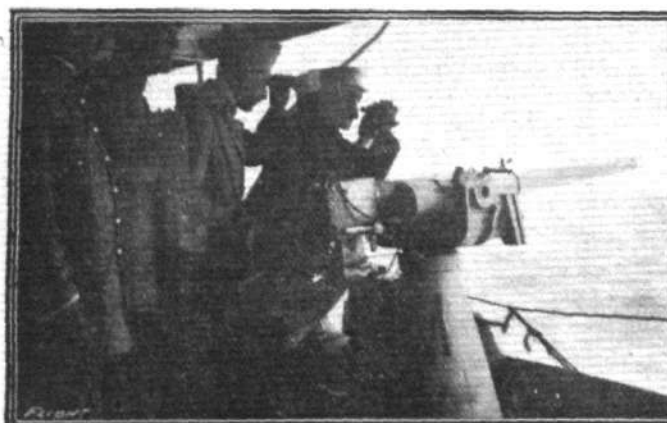
but the real fact is that the atmosphere is awfully rotten. The wind coming from the Vardar is as good as any bad day at Hendon when you do not see flying at all." It should be remembered that Noel's experience of the aerodrome dates back to pre-war days. Possibly he



"Flight" Copyright

Memorial tablet in hammered bronze to be erected in Oxhey Church to the memory of Flight Sub-Lieutenant Warneford, V.C. The tablet has been subscribed for by the people of Oxhey, and is the work of Messrs. Swanser and Son, of Great Queen Street, W.C.

it, but they are too big to send. You shall have them after the war. Please remember me to my friends at Hendon. I can't get time to write to everybody. Good bye, and cheer up." Why not reciprocate with Noel? He would be ever so bucked up to get a line from some of his numerous friends here, and we shall be only too glad to forward any letters to him. A cheerful letter from home means a lot when out in a strange country and under such circumstances.



Louis Noel and his brother officers on the look-out for submarines on the way to Salonica, and (on the right) Sergt. P— makes the first flight at Salonica, October 19th, 1915.



THE CURTISS MARINE FLYING TROPHY.—The above reproduction is from the first actual photograph of the trophy itself, this having been on view during the Aero Club of America's annual banquet this month. A reproduction of the original model for this appeared in the pages of "FLIGHT" on July 16th, 1915.

In view of the fact that it is some years since the late Col. Cody carried a man on one of his wings, and quite a long time since the Grahame-White five-seater carried two mechanics on the wing tips, it seems a little surprising that it should not have occurred to anybody until a few months back to make use of this possibility of crew distribution. It has apparently been left to the American Sturtevant firm to develop the idea, and put a gunner out on each wing seated in a little stream-line nacelle. Some details of the machine were given a week or two back, and the further photo. reproduced on this page is to hand, with the information that the Sturtevant battleplane has done exceptionally well in her trials. That these have been more of an aerodynamic than a military character is to be presumed, since the merits of the design from the fighting point of view could hardly be ascertained except under actual war conditions. It would seem that for angle of fire and traverse this disposition of the gunners might have several points to recommend it.

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Hendon under snow looked quite unfamiliar the other day. In Collindale Avenue at ordinary times all you have to guard against is the mud flung up by motor cars not always travelling at exactly a walking pace, but the other day snowballs had a habit of hitting you in the face from the most unexpected directions, some getting past your first line of defences and lodging between your neck and collar. When passing through the gate I received a "Jack Johnson" which, after rubbing the snow out of my eyes, I discovered to have been fired by the St. Peter of the aerodrome, *alias* Mr. Plant—a regular plant, in fact—whose shoulders were shaking with unholy glee. However, I finally managed to reach the enclosures, where a battle-royal was in progress, in which civilians and officers, starred and unstarred men, designers and managers participated.

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It was only the end of the dinner hour that put a stop to the fun. Later on a good deal of flying took place, the propellers raising miniature snowstorms as the machines started off. As the sun began its *vol plane* towards the horizon the sheds became more attractive with their braziers and a brief visit revealed quite a lot of activity inside. In the Beatty establishment school



Side view of the new Sturtevant battleplane, which has accommodation for two gunners on the wings. Particulars of this American plane were given in "FLIGHT" recently.

'buses were being overhauled, while simultaneously work was progressing on the little Wright pusher, which is being fitted with a nacelle. The combination of this and the Wright planes and low chassis looks rather unusual, and the machine has already attached to itself a nickname, which is, however, not for publication. It is expected to be out—the 'bus, not the nickname—in about a week's time.

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At the L. and P. sheds I found Mr. Fletcher, the inevitable cigarette between his lips, hard at it laying out the fuselage of his new tractor biplane. As several men are now at work on her, it is possible to get some idea as to what she will look like. Several of the fittings are highly ingenious in their simplicity, and everything has been kept as light as possible, without, be it said, leaving any part too weak for its work. The lightness in weight of the complete machine will be merely the result of careful design, lightening being effected where no great strength is required, and plenty of material being left where the greatest strains occur. With the 80 h.p. Anzani she may confidently be expected to develop a good turn of speed, and should prove an excellent climber.

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Reference has been made from time to time to the aerial exploits of Miss Katherine Stinson, the well-known American aviatrix. Some time ago she eclipsed all her previous performances by a feat which is thus described by our New York contemporary, *Aerial Age* :—

"Not satisfied with all the aeronautic honours which she has gained in her short life of nineteen years, Miss Katherine Stinson, coveted the one remaining flight which she held to be necessary to place herself at the very top of the experts in flying. She had performed all the 'stunts' known in the art by day, but after Art. Smith had looped-the-loop by night, leaving behind him a trail of fire, she resolved that what an aviator had done an aviatrix can do also.

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Points from the Air Election.

THE air election campaign in East Herts. is now in full swing. The candidates nominated are Mr. N. Pemberton-Billing (who plumps for "Supremacy in the Air"), Major Brodie Henderson, the official candidate, and Mr. W. H. Rolfe, Independent.

Mr. Pemberton-Billing claims to have issued the shortest election address on record. It consists of a series of photos. showing the damage done by Zeppelin raids with the statement—"The accompanying illustrations express with far greater eloquence than any words of mine the urgent and crying need of having an airman in the House of Commons who understands his job."

Another innovation by the air candidate is the use of gramophones so that several meetings may be addressed at one time.

The air candidate's favour is a red ribbon and a model aeroplane.

While welcoming Lord Derby's appointment as Chairman of the Joint Committee, Mr. Pemberton-Billing says :—"But I cannot help feeling that Lord Derby, with all his gifts, can lay no claim to being an expert on air matters. He cannot have sufficient personal knowledge to free him from the danger of listening to the divided counsels of many well-meaning experts."

In order to avoid the expense of an election Mr. Pemberton-Billing has made the offer that if Major Henderson will stand down in favour of him, the latter will apply for the Chiltern Hundreds at the end of the war and surrender the seat to him. In regard to Mr. Rolfe, his candidature does not appear to be taken seriously.

Speaking on behalf of Major Henderson, Lord Salisbury said last week, "For myself, let the Zeppelins come and smash every stone of my property, and I should not care so long as we won the war."

A voice : What about the people in it ?

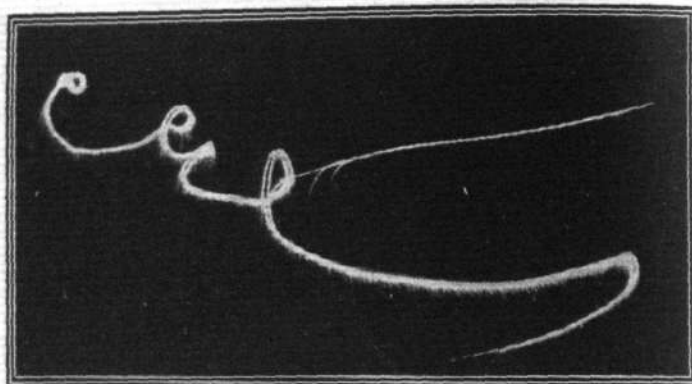
Lord Salisbury : No one who knows me will accuse me of placing no value on loss of life.

The Mile End Air Election.

MR. PEMBERTON-BILLING'S expenses in connection with the

"The feat was performed in Los Angeles. Using the sky for a background, she etched fantastic figures with her biplane studded with magnesium pyrotechnics. She traced the letters, 'Cal,' in the sky ; she looped ; flew upside down, and dropped in a mad tumble to within a hundred feet of the earth, all the while being showered with the drippings from the burning lights on her biplane.

"Miss Stinson flew from a field, narrow, rough and lighted only with four small bonfires of wood. Probably



Photograph of a series of loops executed by Miss Katherine Stinson at Los Angeles during one of her night flights. The "script" is supposed to be "Cal," representing California.

less than twenty-five persons witnessed the starting and the landing, because the little lady thinks that it is not lucky to try a new stunt before a great crowd, but from afar thousands saw the aerial display weird and beautiful, like a great invisible pen writing in molten fire on the curtain of the night."

Apparently this stunt was visualised, judging by the "bloc-note" which we reproduce from our contemporary.

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by-election at Mile End were declared at Bow Street on Tuesday by his agent, Mr. H. J. Houston, to have amounted to £564.

Aeroplanes from Gold Coast.

A MAGNIFICENT gift to the flying services is disclosed by the official announcement that the sum of £80,000 which the Government of the Gold Coast decided to contribute towards the expenses of the war is being paid in annual instalments of £10,000, the first two of which are being devoted to the provision of aeroplanes for the use of the Royal Flying Corps.

A Third Aeroplane from Mauritius.

A FURTHER sum of £2,250 has been subscribed in Mauritius for the provision of a military aeroplane. This is the third aeroplane presented by the colony within six weeks.

County Funds for Aeroplanes.

A SUGGESTION made to the Brentwood Patriotic Committee by Dr. C. R. Taylor, that a local fund should be raised for presenting an aeroplane to the Government, and offering £100 as a start, is being referred to the Lord Lieutenant of Essex, with a view not only to a county fund being raised, but also to the idea being taken up by other counties.

The Prince of Wales Fund and Air Raid Victims.

IT is worthy of note that the only new feature on the civil side, in the half-yearly (April to September, 1915) report of the National Relief Fund, is the demand for assistance to victims of air raids. The committee felt that the fund was clearly available for the temporary relief of distress in these cases. In addition, however, to this temporary assistance, the committee accepted a proposal, put forward by the Government Committee, that in cases of material loss suffered by poor persons who were uninsured, and would be unlikely or unable to insure, assistance should be given to a limited extent in replacing furniture or utensils necessary for the daily life of the home. It is not, however, proposed that grants should be made which would be in the nature of compensation for personal injury or which would involve a permanent charge upon the fund.

AIRCRAFT WORK AT THE FRONT.

OFFICIAL INFORMATION.

British.

General Headquarters, Feb. 22nd.

"One of our aeroplanes was struck by an anti-aircraft shell. The pilot's leg was practically severed. He managed however, to land his machine safely in an aerodrome and without injury to his observer."

General Headquarters, Feb. 25th.

"Yesterday our aeroplanes carried out a successful bombing raid against an enemy aerodrome near Lille. All our machines returned safely."

Cairo, Feb. 27th.

"The enemy's column under Nuri and Gaafar was attacked yesterday morning at Agagia, about fifteen miles south-east of Barrani, by General Lukin's column, consisting of South African troops, Yeomanry, and Territorial Artillery. By 3.30 p.m. the enemy had been completely routed, and was fleeing in scattered parties, pursued by our cavalry. At 4 p.m. aeroplanes reported them to be eight miles south-west of Agagia, still being pursued."

French.

Paris, Feb. 22nd. Afternoon.

"The Zeppelin brought down at Brabant-le-Roi is the 'L 77,' of very recent construction. It was set fire to by an incendiary shell, and on coming to earth was further destroyed by the explosion of the bombs on board."

"The naked bodies of the officers and men forming the crew of the Zeppelin have been found in the cabin-boat."

"A Zeppelin flew over Lunéville last evening, and dropped some bombs, which caused only slight material damage. Pursued by our aeroplanes, the airship turned back towards Metz."

Paris, Feb. 24th. Afternoon.

"In the course of the night one of our bombarding air squadrons dropped forty-five bombs, several of them of large size, on the railway station of Metz-Sablons, and on the gasworks. A large outbreak of fire was observed immediately afterwards."

Paris, Feb. 26th. Evening.

"To-day, in the region of Verdun, Adjutant Navarre on a mono-

plane brought down by fire from machine-guns two German aeroplanes, which now bring the total of the enemy's machines brought down by this intrepid aeronaut to five."

"A French squadron of nine armoured aeroplanes dropped 144 shells on the railway station of Metz-Sablons, while another squadron bombarded the German establishments at Chambley, north-west of Pont-à-Mousson."

Russian.

Petrograd, Feb. 23rd.

"Several German aeroplanes dropped bombs on the districts of Riga, Friedrichstadt, and Jacobstadt."

"Two Zeppelins flew over Dvinsk."

Petrograd, Feb. 24th.

"Above the Riga region and in the Dwina-Oger-Probstingshof sector German aeroplanes appeared and threw bombs."

"Near the Bosphorus one of our submarines was twice attacked without result by two enemy aeroplanes. The submarine destroyed a sailing ship laden with coal."

German.

Berlin, Feb. 22nd.

"Numerous aerial engagements took place between the aviators who ascended on both sides, especially behind the enemy front. A German airship fell a victim to the enemy fire near Révigny during the night."

Berlin, Feb. 23rd.

"In numerous aerial engagements behind the enemy lines our airmen maintained the upper hand."

Berlin, Feb. 27th.

"In Flanders our aeroplane squadrons repeated their attacks on the camp of the enemy troops."

"A bomb attack on Metz by enemy aviators resulted in the injury or death of eight civilians and seven soldiers. Several houses were damaged. In the neighbourhood of the fortress a French aeroplane was brought down in aerial battle and by bombardment by anti-aircraft guns. The occupants, who included two captains, were taken prisoners."

From Other Sources.

"The *Journal* recently gave the following details of a duel in the north of France between a French aeroplane and a Fokker, during which Lieutenant Cabanes met his death."

"The German machine was sighted a long distance off, but as it was in the early days of the Fokker, Cabanes was unable to assure himself of its nationality until it opened fire. Cabanes was shot through the shoulder by the first salvo as he was preparing his machine gun, and fell forward on to the pilot, gripping him so that he could not free himself."

"A few minutes later the pilot—a corporal—received two bullets through the hand. With the other he endeavoured to manipulate his machine, but his adversary was faster and better armed, and, circling above him, sent in a hot fire. Covered with his companion's blood, suffering agonies from his own wounds, and with his aeroplane pierced in a dozen places by the enemy's fire, the corporal endeavoured to plane down towards the French lines."

"The two machines were by this time wing to wing, but the German suddenly realised the risk he was running in approaching the French lines, and after firing a last volley circled round and beat a retreat. A few minutes later the plucky pilot had brought his machine to earth within the French lines."

A Reuter message from Zurich, dated February 23rd, says:—

"Travellers coming from Germany report an extraordinary activity in the building of Zeppelin sheds."

The Central News correspondent at Amsterdam, writing under date of February 23rd, says:—

"Messages from southern Limburg state that loud and repeated alarm signals by horns and sirens were heard yesterday from the direction of Belgium, just within the frontier, and a few moments later no fewer than 80 loud explosions were audible. A quarter of an hour later there were two further series of explosions, 13 on the first occasion and 21 just afterwards. It was evident that bombs of varying size were being dropped, and it is believed that a great raid was in progress, with a view to the destruction of the new four-track railway constructed by the Germans between Aix-la-Chapelle and Vise. It is not without significance that a number of aeroplanes also flew over Liège and were fired upon."

A Central News message from Petrograd, dated February 22nd, states:—

"Two German airmen, while flying near Lake Drisviatz in an Albatros, were forced to descend by our fire, and both were made prisoners."

The Czernovitz correspondent of the *Berliner Tageblatt* last week reported that on the Bessarabian front only small local engagements take place, while, on the other hand, air actions are becoming more numerous.

On February 20th, Russian airmen endeavoured to reconnoitre Austrian positions, and dropped bombs, but were chased and compelled to descend.

The *Daily Mail* special correspondent at Rotterdam, writing on February 27th, says:—

"Enemy flying machines are out in great number. A very large battle-plane mounting two guns was seen leaving Zeebrugge."

Mr. Edmund Candler, writing from Basra to the *Daily Telegraph* under date February 21st, says:—

"Cheery messages come through from General Townshend (at Kut). He is sowing vegetable seeds, and has asked for gramophone needles. These and other light requisites are dropped in his camp by aeroplane. He reports sufficient supplies for a long period to come."

The *Times* Parisian correspondent, writing on February 25th with regard to the Verdun fighting, says:—

"As was the case in the Champagne offensive, the battle began with aerial operations, the object of which was to reconnoitre, and, by bomb dropping on big railway centres, to interfere with the transport of reinforcements and supplies. In this first phase of the battle, the French scored distinctly, bringing down four aeroplanes and a Zeppelin, and preventing any interference with the lines of communication."

"An increased bombardment, which followed the air engagements, continued with unremitting violence until noon on Monday."

The *Times* correspondent in Paris, writing under date of February 22nd, gives the following details of the shooting down of the "L 77":—

"The French are celebrating to-day, as a victory, the result of the first big battle in the air, for, in yesterday's engagements, for the first time, there was the appearance of big combined aerial operations, with aeroplanes skirmishing on the wings and Zeppelins holding the centre."

"Along the whole Eastern front yesterday there were aerial attacks and counter-attacks, the results of which were in every case favourable to the French. Starting in Alsace, east of Altkirch, a Fokker was brought down in an air fight at Epinal, and north of the Forest of Parroy, at Vigneulles-les-Hatton-châtel, Fismes, Bar-le-Duc, and Révigny, in the Argonne, aeroplanes were engaged."

"The fighting reached the culminating point along the front of the Crown Prince's Army, whence came the Zeppelin attack. It was towards 8.30 p.m. that the airship was reported by the listening posts. It was then flying at a height of nearly 6,000 ft. It was seen flying over Sommeille, using its searchlights for a brief moment. Then, with lights out, it flew over Révigny, where the motor searchlights picked it up. It was fighting with a head wind and making slow progress.

"Immediately it came within range the motor anti-aircraft guns got to work, and apparently found the range almost immediately. First a tracer shell burst just at the stern and then another a little above the airship. The third shell, an incendiary one, found the target. It appeared to those watching to go right through and remain embedded in the right flank of the balloon. Fire broke out immediately, and spread right along the airship, outlining the car and the body above it. After glowing gently, the whole dirigible burst into flames. It came to earth slowly, large flakes of flame lighting its descent. There was no explosion until the Zeppelin touched the ground, when all its cargo of bombs burst.

"The extraordinary spectacle of a flaming Zeppelin was seen by many, and from the neighbouring town of Révigny and from the ruined village of Brabant-le-Roi, there was a wild helter-skelter across the fields and along the roads to the spot, where nothing but a confused mass of wreckage was left in which were 20 to 30 bodies, only one of which was clothed in the shreds of a uniform. From evidence found it appears that the dirigible was the naval airship, of the very latest design, 'L 77.'

"Ten miles away, another Zeppelin, which had crossed the French lines, watched the fate of its companion and then turned and disappeared.

"At the same time a third Zeppelin flew over Lunéville and dropped bombs which, however, caused nothing but unimportant material damage."

The following account of the destruction of the Zeppelin is given by a passenger from Bar-le-Duc to Châlons, whose train was stopped at Révigny:—

"When we arrived at Révigny station I heard a violent cannonade. At the same time I saw a Zeppelin with its searchlight, picking out its way in the direction of Sommeille. The cannonade became more intense and the light disappeared, and, for a moment, we lost trace of the raider. After a few minutes, however, the noise of the motors seemed to indicate that the Zeppelin was almost above us. Meanwhile the searchlights which had been sweeping the sky in all directions succeeded in locating it. Then there came a violent explosion, followed by others at short intervals. The special batteries had opened fire. The Zeppelin seemed to hesitate in its course, but continued southwards for a few moments, and then suddenly swung around. It was evidently trying to escape, but the searchlights gave it no rest, and the cannonade became greater every minute. Suddenly flames burst into the sky. We all shouted, 'He's hit,' and instinctively we all rushed towards it. In less than 10 seconds the whole dirigible was glowing. It turned around two or three times, and then, like some fantastic torch, it fell writhing to the earth."

Some further details are given in the following story as told in the *Petit Parisien* by Adjutant G—, said to have been in command of the successful battery:—

"The Zeppelin was first picked up by the rays of the searchlights when at an altitude of 2,500 metres over Révigny. Two automobile guns concealed somewhere north of Révigny fired about twenty shells without success. When the Zeppelin was within about three kilometres of Sainte Menehould a 75 opened fire. The first shell, an incendiary, struck the forepart of the dirigible, and four others followed in quick succession. Then the sixth shell, fired by Adjutant G—, got home, passing into the middle of the Zeppelin.

"A great mass of flame spouted out, and formed a circle of fire about the airship, which began slowly to descend until, as it passed over the Révigny-Sainte Menehould lines, at an altitude of about 800 metres, it broke into two and collapsed.

"Meanwhile, the crew had thrown out a number of large bombs, which made great holes in the ground. One member of the crew jumped from the Zeppelin from a height of 200 metres, and was picked up smashed to pieces. The Zeppelin itself fell almost immediately afterwards with a terrific noise, collapsing in a mass of flames.

"An excited crowd of spectators was quickly on the spot, loudly cheering, and on the following morning soldiers removed the charred and unrecognisable remains of the German airmen and buried them.

"Wind Flying."

ALTHOUGH they will have been detected by most readers, it is as well to point out two obvious slips which crept into the interesting article on Wind flying, by J. H. Moore, in our last issue. The first was the use of the word "draught" instead of "drift" in

The adjutant received the heartiest congratulations from his officers and comrades. He added: "When I saw that I had hit the Zeppelin I was overcome by my feelings. My joy overflowed, and I became like a child."

The *Daily Mail* correspondent at Pontarlier, on the French-Swiss frontier, says:—

"A German source gives the following details of Zeppelin 77, destroyed by the French incendiary shell near Révigny:—

"The vessel belonged to the middle period of construction, but had been enlarged and improved. She carried over twenty of a crew, eight machine guns, and on the overhead platform two 'revolver' guns. Her orders were to bomb the railway junctions behind the front, especially, perhaps, Révigny owing to its importance for Verdun (which is only some thirty miles away). Air scouts had previously thrown bombs on Révigny, and three aeroplanes accompanied the Zeppelin. She had not thrown any bombs when obliged to descend near Révigny, perhaps owing to a defect in the machinery."

A Central News message from Geneva, dated February 25th, says:—

"News has reached here that on the occasion of the recent raid by a French aerial squadron six hangars with the aeroplanes they contained were destroyed at Habsheim.

"The goods station at Mulhouse was damaged in the course of the same raid, and a train loaded with war material was partly destroyed."

Writing to the *Daily Telegraph* from Milan on February 23rd, Mr. A. Beaumont gives the following thrilling story of the raid on Laibach:—

"Correspondents at Udina to-day wire graphic descriptions of the incidents during the Italian air raid on Laibach, which, as announced, was a punitive incursion for the Austrian aeroplane attack on Milan. For the fourteen unarmed victims, including women and children, killed in Milan, the Italian commander ordered retaliation on the Austrian town of Laibach, some sixty miles from the Isonzo frontier, and seven big Italian aeroplanes loaded with bombs executed their mission on Friday morning. They were pursued by a swarm of fast Austrian Fokkers, nevertheless they accomplished their raid, dropping all their bombs on Laibach. Five machines returned unscathed. Of the two others, one was compelled to land within the Austrian lines, whilst the other, piloted by Captain Salomone, bore nearly all the brunt of the Austrian assault, and landed finally inside the Italian lines after the dramatic death of two out of its three occupants.

"Captain Salomone, having had difficulties in starting, was the last of the seven aeroplanes to get away, and was first approached by the pursuing warhawks. Several machines attacked him simultaneously, one flying above and one below, and others at the side. Three times a fast Fokker machine flew about fifty yards above him, firing machine guns. First one of the observers was wounded, and then he himself was grazed by a bullet, which tore off part of his scalp. Bleeding and tired, he continued his flight, dropped all his bombs over the town, and headed back home, when again the Austrian machines returned to the attack, flying above and below him.

"A third time the Fokker machine passed over him. A bullet through the brain killed his companion on the right, and immediately afterwards his companion on the left was shot through the heart, and also dropped forward dead. The two corpses were lying at his feet encumbering his manoeuvres, when the captain pluckily continued his flight. The Austrians had exhausted all their ammunition, and kept pursuing him so closely that their voices could easily be heard. 'Surrender,' they shouted to him again and again, and each time he shook his head, and shouted doggedly, 'No!'

"The Italian lines were within sight, and down he came safely on the banks of the Laguna Grado. The machine landed, he fainted from exhaustion, and Italian soldiers who hastened to the spot were surprised to see nobody moving in the aeroplane, which seemed like a phantom machine dropped from the sky. As they came nearer they saw the three motionless bodies, and at first believed that all three were dead. Captain Salomone at that instant recovered consciousness, and his first eager questions were about his brave comrades. He had lost a lot of blood, and was taken to the nearest field hospital, where last Monday General Cadorna himself went to visit him at his bedside, and pinned the gold medal on his breast."

the paragraph: "When about to land, the correct thing to do is to turn the machine into the draught, &c." The second was in the concluding paragraph where "if the head wind suddenly increased in velocity" should, of course, read "decreased in velocity."

Air Raids and Workmen's Compensation.

A NOVEL legal point in connection with the Workmen's Compensation Act was decided in a London County Court on Monday, when a 'bus conductor sued the London General Omnibus Company for compensation for injuries inflicted by a Zeppelin bomb, which, dropping near his 'bus, killed the driver and several passengers. For the company it was urged that the accident did not arise out of the applicant's employment; he could have taken cover.

His Honour, on the question whether it was safer for a person to be under cover than in the open, said the answer must be "Yes." He was not sure that it would have been impossible for Hammond to have taken cover. It might have been that Hammond was doing his duty as a conductor in trying to appease the alarm of the passengers. He held that the man was exposed to no more risk than any of the passengers on whom the bomb fell. With every sympathy for Hammond he must find that the injury occurred in the course of his employment, but did not arise out of it, and that the applicant had failed to show that he was exposed to special risk. The application was refused with costs.

Flying and Heart Experiments.

AEROPLANE sickness is, of course, a well-known condition, and a great deal has been written concerning it. It is probably to be classed with mountain sickness, though there are many points of difference.

Thus, the airman reaches a great altitude much more quickly than does the climber and—except, perhaps, when the climber goes up by a funicular railway—with less physical exertion. Again, the descent of the airman is very rapid. The airman has therefore to adapt himself in an exceedingly short space of time to entirely different climatic conditions.

The medical side of the problem is being worked out, says the *Times*, and the French are devoting considerable attention to it. They recognise that a great deal depends on the physical condition of the man sent up. If he is the wrong type the strain imposed on him by altitude alone may well defeat his utility. If he is the right type his value must needs be very much greater.

The work is of a highly technical nature, but it is also highly interesting. Some of the most recent researches are described in *La Presse Médical* for February 14th, and are well worth attention. The writer Dr. G. Ferry, Aide-Major de 2e classe au Parc d'Aviation, took careful records of his pulse and blood pressure during several flights, and his conclusions are as follows:—

The pulse becomes more and more rapid from the ground up to a height of 750 metres. From this height to 1,250 metres it still augments, but less rapidly. Above this height it again accelerates more rapidly. The period of slower acceleration seems to be explained by the fact that between 750 metres and 1,250 metres the air is usually calmer than at lower altitudes and the wind more regular. Above this height the cold becomes a great factor in acceleration. Each time a gust strikes the aeroplane the pulse accelerates. During a flight at a particular altitude the pulse remains constant.

When descent begins there is again for a very short period a quickening of the pulse, due, it is thought, to the thrill of excitement experienced when the engine is shut off. After this the frequency falls in a regular manner during a slow descent. Each "event" in the descent causes an acceleration, short, but definite. The pulse at the end of the flight is always more rapid than at the beginning.

Blood pressure is dealt with in the same way, and the author concludes that in the choice of pilot-pupils men with heart or blood-vessel weakness should be rigorously excluded. Even the slightest weakness should, in his view, be sufficient ground for rejection, because of the great strain which will be put on these organs.

The Pope's Protest.

A LETTER written by Cardinal Gasparri, Papal Secretary of State, to the Archbishop of Ravenna, again expresses the bitter sorrow and profound regret of the Pope at the sufferings and loss of life of the innocent victims as the result of the Austrian air raids. The letter continues:—

"His Holiness, as the vigilant custodian of the supreme interests of religion, history, and art, has not failed solicitously to repeat his paternal insistent injunctions to the Austro-Hungarian Government that the war should be conducted in conformity with recognised principles. With regard to open and undefended cities, and the safeguarding from misadventure of their precious treasure of monuments and churches, his Holiness has expressed the wish that in the Italo Austrian war the use of aeroplane bombs might be entirely suppressed. If this noble intention has not been achieved, it is not from any want of warm interest on the part of the Common Father of the Faithful, but for reasons which he will explain personally when opportunity offers."

The Latest Zeppelins.

IF a communication which has been received from Friedrichshafen by the *Kölnische Volkszeitung* may be credited, the new Zeppelin factories have been considerably enlarged and are making two Zeppelins weekly of a new type, built to carry six machine-guns and two small cannon, with special apparatus for throwing bombs and air torpedoes. The gondolas are steel plated. Trials have been made by the Zeppelins to throw asphyxiating gas around the airship to ensure flight when pursued. The last Zeppelin built bore the number 95.

According to the *Times* correspondent at the Hague, a "neutral lady of some distinction," who had just arrived from Berlin, asked as to Zeppelin activity, replied that "the new 'Spitzende' Zeppelin (pointed at each end) was swiftly manoeuvring over Berlin last week either for practice or for demonstration before the people. Everywhere is Zeppelin talk. There is unusual activity at Johannisthal, the aeronautical headquarters near Berlin, and aeroplanes are practising everywhere, especially in the Döberitz district. The poorer classes have unlimited faith in the air warfare, and believe that eventually the Germans will be able to land large bodies of troops in England by this means. Councillor Rudolf Martin issued some time ago some foolish notes on this project."

The fire-eaters are not now so numerous as they were in circles of this kind a year ago. Then they were all talking of a chain of submarines which would throttle John Bull, and of Zeppelins that would set fire to the Bank of England and Buckingham Palace. To-day there are thousands who question whether the use of submarines and Zeppelins may not cause England to tighten the blockade and thus deprive the soldiers of the necessities which are reaching them through the leakages.

Last Words from "L19."

WHAT appear to be the last messages from the wrecked Zeppelin "L19" are reported to have been found by a Swedish trawler, off Smøgen, Sweden. According to the *Morning Post* correspondent at Stockholm, the trawler picked up a bottle containing four German field post-cards from Zeppelin "L19." Two of them were signed "Otto Uhle, Commander." One was addressed to his parents and one to his wife in Wilhelmshaven. On one he stated that the airship had been on a reconnoitring expedition to Norway, and that it was lost on the return voyage in the North Sea, where it was passed by the British trawler "St. Stephen." He added that while at an altitude of 100 metres the motors failed, and that the crew had expected at any moment that the airship would fall. Another card stated that the crew were in distress. The cards were dated February 1st.

The Zeppelin Raid on Salonika.

FROM Athens on February 16th the correspondent of the *Standard* sent the following regarding the damage done to Salonika by Zeppelins:—

"I learn from diplomatic sources that the estimates of the damage to life and property at Salonika caused by the Zeppelin raid, which were presented by the Greek Government to the Allied Legations, meets with the latter's full approval. On a rough estimate the damage to property is about six million drachmas (£240,000), but a detailed list will be supplied by the Prefect of Salonika, and submitted to the Legations for examination. A settlement will not yet be made, but will be included in the general list, on the conclusion of the Macedonian operations, of damages to the bridge of Demirhissar and other destruction of property necessitated by strategical considerations.

"Two more of those injured in the Zeppelin raid have died in hospital."

Another German Apology to Denmark.

AS was anticipated, the German Government has expressed to the Danish Government its regret that a German aeroplane on the 12th ult. flew over Danish territory near Copenhagen. It is added that the German military authorities have repealed in the most emphatic manner the order that aircraft shall not fly over neutral territory. But they will continue to do so just the same.

Death of a German Pioneer.

ONE of the staunchest advocates of the rigid type of airship in Germany, Major Sperling, who was at one time in command of the military airship fleet, has just died in a sanatorium near Berlin.

One noteworthy incident of his career was the piloting of the first Zeppelin taken over by the German army, to Metz in 1909, an achievement which aroused a good deal of enthusiasm in the country.

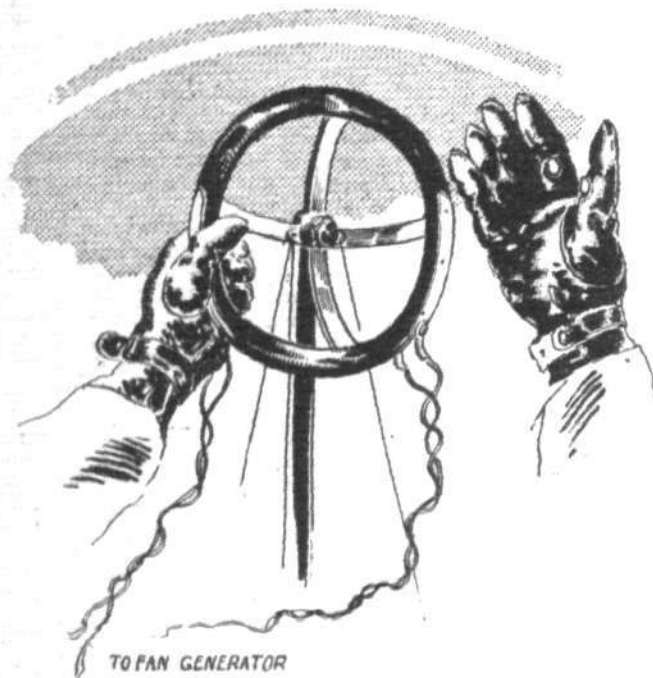
Ramsgate Bomber Decorated.

ACCORDING to the *Foehrzeitung*, the hero of the hour on the island of Foehr, West Schleswig, is the naval airman Friedrich Christiansen, of Wyk, "whose deathless deed in bombing Ramsgate recently, in the company of another seaplane, astonished the whole of England." Christiansen has been promoted, and has received the inevitable Iron Cross.

TO KEEP THE HANDS WARM.

COLD hands, unlike "cold feet," are a symptom that most aviators often experience with extreme discomfort. Ordinary gloves, no matter how thick they may be, are not always successful in keeping the intense cold from the finger tips, and numbed finger tips are of little use, not to say a source of danger, when handling an aeroplane or motor car. We have just had brought to our notice two ingenious devices which in actual practice have proved a remedy for this unpleasantness.

The first consists of electrically heated gloves, the essential features of which are the use of an electric heating element distributed



throughout the fingers and back of both hands, which when connected to a light fan-driven generator, gives uniform heating all over the hand; and the use of a contact arrangement on the control wheel, so that there are no cords attached to the gloves to interfere with the free use of the hands. Inside the heavy leather glove is

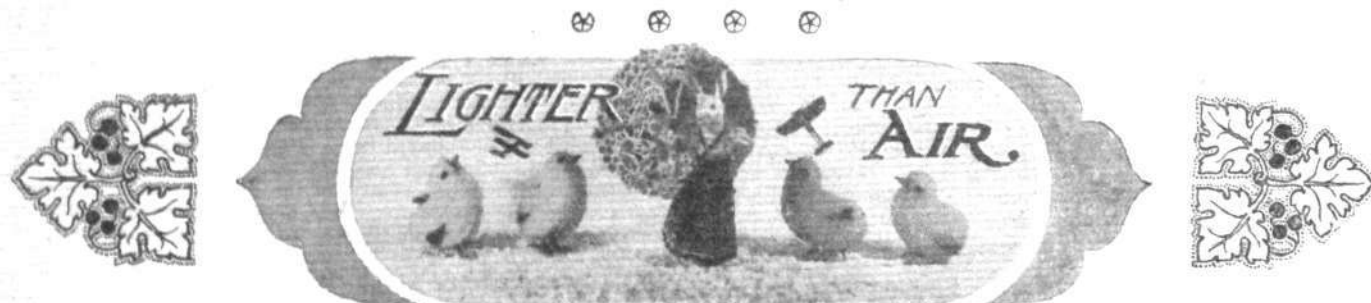
sewn a woollen lining, through which is laced the flexible wire which carries the electric current. This wire is threaded into each finger and over the back of the hand, and is arranged and covered in such a manner that it does not come in contact with the hand at any point. The wire terminates at two small brass discs which are attached to the outside of the leather glove, one on the inside of the thumb, and the other on the forefinger opposite to the one on the thumb.

A pair of contact plates cut from thin non-corrosive metal are attached to the wheel. These are made to fit the segment perfectly, and so arranged as to obviate any abrasion of the gloves on the rim of the wheel. A neat switch is provided so that the current can be shut off when the heat is not required. It is claimed that no amount of saturation will short circuit the current, and the gloves are made with a view to very long service. The grip obtained is better than that when mittens are used, as the fingers can be freely moved. When the wheel is grasped the contacts on the thumb and finger of the glove automatically come into contact with the metal plates, thus completing the electric circuit through the glove. The electric contact between the buttons on the gloves and the plates on the wheel will not vary appreciably under normal conditions of use, as the pressure would have to be much lighter than that necessary to manipulate the wheel before the current would be interrupted.

The amount of heat required will depend upon the temperature, wind, and speed of the machine, but it is easily regulated by breaking contact with the forefinger. No overheating will be experienced, as the heat becomes constant after a few minutes' contact. An electrical test which was conducted in an independent laboratory, showed a rise in temperature of 40° above a surrounding air temperature of 70°, and a rise of 61° in twelve minutes. These results were obtained with a pair of gloves which had already been in use two seasons, and one glove was soaked in water before being tested, but the water had no appreciable effect. It may be interesting to note that the heating element which is woven into the gloves is composed of 63 fine strands of a non-rusting alloy, and is so flexible that it cannot be detected when the glove is on the hand, but has, nevertheless, a tensile strength of 100 lbs.

The other device to which reference has been made consists of two neat leather covered grips, one for each hand, which lace on to the wheel at any convenient position. Resistance wires are arranged between two copper plates in such a way that a very small current is sufficient to keep the grips warm. It is claimed that with this device the hands can be kept warm in light gloves or mittens.

Both these heating devices, which are already in extensive use in America on automobiles, are being marketed in this country by Mr. Lyman J. Seely, of 17, Surrey Street, Strand, London, W.C., to whom enquiries should be addressed.



"Life is a mirror—smile at it and it will smile back; frown at it and it will frown again."

He was Covered all Right.

As he crawled out of the wreck of his aeroplane a solicitous friend asked:

"Are you covered?"

"Yes," he said sadly, "with mud, blood, chagrin, and insurance. Is that enough?"

English Spoken.

AMERICAN AVIATOR: "Parlez-vous Anglais?"

THE PARISIENNE: "Oui, un peu—Kees me qureek! Do you love me? 'Old me tight! Damn! 'Ell!"—*Puck, New York.*

Back to Earth.

THE sick airman had just come out of a long delirium.

"Where am I?" he said, feebly, as he felt the loving hands making him comfortable. "Where am I? In heaven?"

"No, dear," cooed his devoted wife. "I am still with you."—*Kansas City Journal.*

STARS are not seen during sunshine—unless you make a bad landing.

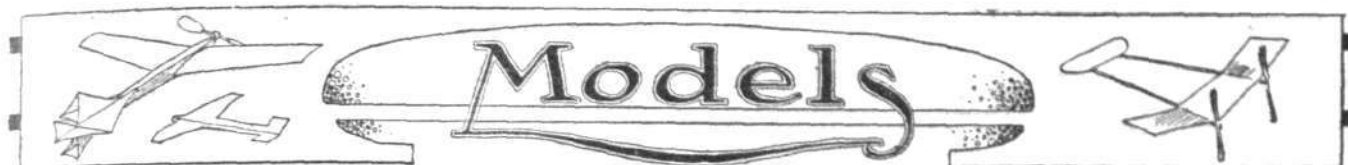
"Some Story."

IN the *Berlingske Tidende*, a Copenhagen journal, the following story was published from a correspondent at Luxor as a specimen of the entertaining items of war news which, at the time of the futile attempt last year against Egypt, were circulated—and believed—in Egypt:—

"A German Taube, under cover of darkness, made an exceedingly audacious but successful flight to London. It made its way to Buckingham Palace, flew in through a window, took King George V prisoner, and brought His Majesty to Germany without the smallest accident."

An unbelieving Arab asked the narrator how such a big machine could get through a window. Thereupon the narrator pointed to a wealthy officer's house which has particularly large windows, and said: "If Captain, who is an ordinary mortal like you and me, has such large windows, what sort of windows must King George have, who is King of England and Emperor of India?"

COME to think of it his Lordship is not the first aerial Derby of which we have heard.—*Whipped Topics.*



ALL communications in connection with this section should be addressed to the Model Editor, "FLIGHT," 44, St. Martin's Lane London, W.C. Correspondents are requested to write on one side of the paper only.

A Model Glider.

MR. CYRIL A. AMES sends the following details of a model glider which will, no doubt, be welcomed by other experimenters:—

"Having obtained, some little time back, some very good results with a model glider, I thought that the drawings might prove useful to fellow-readers, and herewith enclose same. The model, which at first sight appears to be rather complicated, is in reality little more than a 'glorified' paper glider. It is single-surfaced, and can be flown indoors or out of doors on a calm day, and at all times produces a very realistic appearance. The planes are made from either medium thickness notepaper or foolscap, the latter in preference, as if the former is used it will necessitate the upper plane being made in two sections. The supporting struts between the two planes are triangular in section, and, as accompanying drawings indicate, are $\frac{1}{4}$ in. in width on each of the three sides. They are made of thick notepaper, and when one is completed we have a tube 3 ins. long. Each end of the tube is then, in turn, filled with 'Seccotine' (which is to be recommended), and placed in the required position on the plane and left until quite dry. This way besides being very light is very strong. All other supports having been made out of strips of any ordinary wood, in this case obtained from a penny fan, the two lower ones, which run from under the tail, lower plane and eventually form the skids, are made from a strip of bamboo on account of having to bear the strain of landing. These same spars having been previously stuck to the under side of the lower plane, are bound with cotton to the leading edge of same, and afterwards stuck. The wheels, which are made of cardboard, are 3 ply, and the axle, on which these run, is bound to the upper side of skids. Two small skids are bound and glued on to the two lower spars at trailing edge of lower plane. The rudder is on the upper side of the tail, and only the main and upper plane is cambered. The model will require a sealing wax weight under lower plane, the quantity of which can only be determined by experiment."

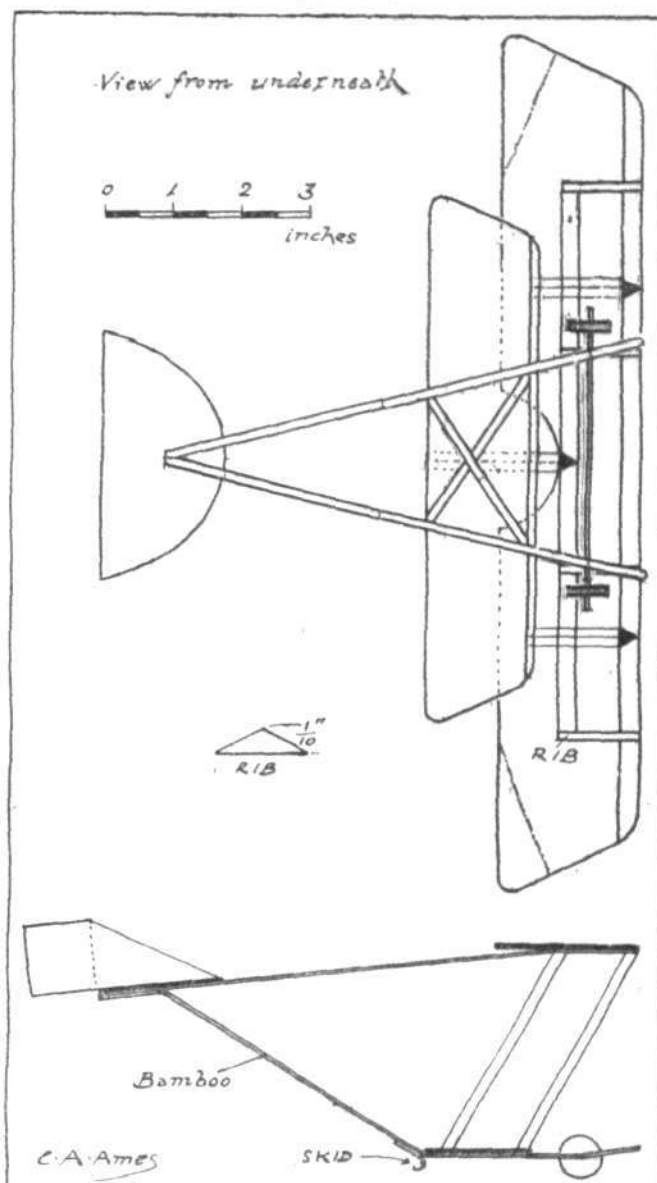
A Scale Model.

From Mr. E. A. Botting, a Kentish reader, who, judging by this sample of his work, should have a future in aviation, we have received the following with the accompanying photographs:—

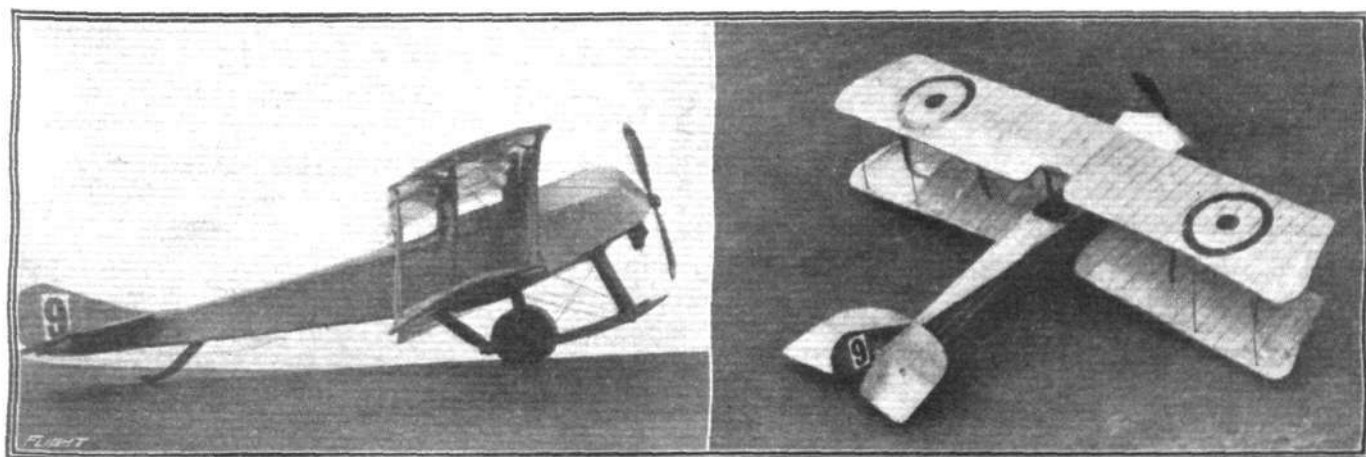
"They represent a model of the Simplex (Mayo) military tractor biplane, which I have constructed from the drawings which appeared in 'FLIGHT.' The simplest of tools were used, and only materials to hand put into the machine. The wing frames, &c., were cut from thin tough card double surfaced with paper, fuselage of cardboard, and chassis of thin cane. The wheels were made from cotton reels. All joining was done with 'Seccotine.' Though far from perfect, the model looks quite realistic, all parts being doped with pale varnish. Of course no attempt was made to make a flying model, the whole affair is much too heavy."

Use of a Bench Wanted.

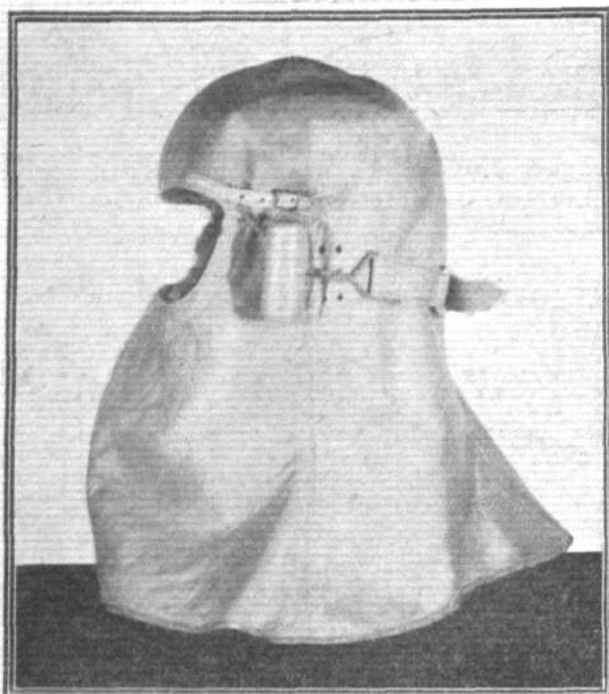
One of our readers, who is stationed at Ufford, near Woodbridge, Suffolk, would be glad to hear from any aeromodelist in the neighbourhood who would permit him to use a bench. We should be glad to send on any letters.



Drawings of Mr. C. A. Ames' model glider.



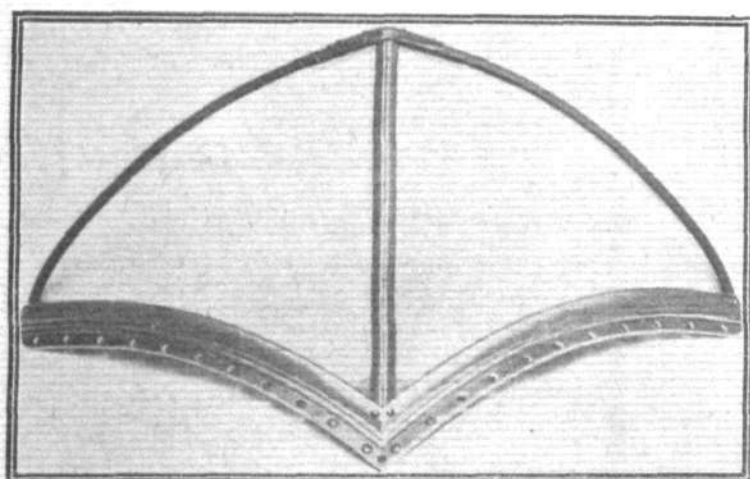
A couple of views of a well-made scale model of the Simplex-Mayo tractor—constructed from the scale drawings in "FLIGHT."



The latest thing in flying caps by Messrs. Harrod, of Brompton Road. It is of tan chrome leather, lined with chamouis, with beaver fur in the top half. Note specially the straps which make it possible of adjustment to any size for comfortable fitting. Altogether a very fine example of headgear. The price is £2 2s.

The Aerofoil and the Screw Propeller.

STUDENTS of aeronautics will doubtless welcome the action of the Institution of Automobile Engineers in publishing the two papers, read last session by Mr. F. W. Lanchester, in a single volume. Both "The Aerofoil: in the Light of Theory and Experiment" and "The Screw Propeller" are valuable contributions to aeronautical literature, and in a sense complementary to each other, and it is of great assistance to have the important matter which they contain available in a convenient form. In addition the book includes the discussions which followed the reading of the papers. The volume is bound in a substantial cloth cover, and the I.A.E. have been wise to fix on a moderate price—3s. 6d. net. Copies can be obtained from the offices of "FLIGHT" for 3s. 11d. post free.



A new type "Auster" aeroplane and seaplane wind-shield, which is fitted with Triplex glass. The extreme width is 22 ins., and the total weight 3 lbs. 7 ozs.

If you require anything pertaining to aviation, study "FLIGHT'S" Index to Advertisers and "FLIGHT'S" Buyers' Guide and Trade Directory, which appear alternately in these pages—one each week.

CORRESPONDENCE.

Flying—Science or Art.

[1917] With reference to the article by the "Dreamer" and letters Nos. 1910 and 1911, I do not agree with "One Interested in Flying" re his remarks on "pushing the rudder bar and the machine turns by science." Possibly he has forgotten the possibility of side-slips, &c., which only the art, or skill, of the pilot can prevent, aided, of course, by a scientifically built and controlled machine. If there is no art in anything there can be no genius, yet genius is an acknowledged fact. Take as an example an instrument, two people learn; both have the same tuition, practice, &c., yet one becomes a master and the other remains a pupil, not because of lack of trying or love of his instrument, but because it comes to one as intuition, while the other has to be repeatedly taught a fact before he masters it. The one has genius, or, if not genius, at least remarkable aptitude. The same thing in aviation; the man whose every move is graceful and smoothly carried out, and who can coax his machine like a tender-mouthed horse, surely he is not in the same class as the man whose moves, though perfectly accurate and correct, are roughly and jerkily carried out. No; one is an "aeroplane artist," the other a "well-trained aviator." Thanking you and with every good wish to your fine paper.

Melbourne, Australia.

KENNETH WALLACE-CRABBE.

The R.F.C. Hospital.

THE Hon. Treasurer of the R.F.C. Hospital, 37, Dorset Square, N.W., acknowledges the receipt of a donation of £3 from a reader of "FLIGHT."

Look for the Gold Seal on Triplex.

WHEN buying goggles or anything else in which "Triplex" glass is utilised, care should be taken to see that each piece of glass carries the little gold seal with the "Triplex" monogram S.T.G. The importance of this warning is emphasised by the fact that the Company recently had a pair of goggles returned to them, which were sold as "Triplex," but were in fact just plain glass.

The Price of "Shell."

USERS of "Shell" are reminded by an announcement of the Asiatic Petroleum Co., Ltd., that they should be able to purchase everywhere, Shell motor spirit in two gallon tins to the extent of one-third of their normal consumption at the old prices, which for England and Wales remain at: Shell, 2s. 2d. per gall.; Shell II, 2s. 1d. per gall.; Crown, 2s. per gall. In Scotland and Ireland the prices are one penny more.

Index and Title Page for Vol. VII.

The 8-page Index for Vol. VII of "FLIGHT" (January to December, 1915) is now ready, and can be had from the Publishers, 44, St. Martin's Lane, London, W.C., price 6d. per copy, post free.

PUBLICATIONS RECEIVED.

The A.B.C. Guide to Patents for Inventions. By Robert E. Phillips and A. Millward Flack. London: Phillips, 70, Chancery Lane, W.C.

Reports on Wind Tunnel Experiments in Aerodynamics (Hodgkins Fund). Smithsonian Miscellaneous Collections, Vol. 62, No. 4. Washington, U.S.A.: The Smithsonian Institution.

Directory of British Manufacturers for Russian Trade. London: Russo-British Trade Exchange, Ltd., 16, Regent Street. Price 5s. net.

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